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New England

What It Is and What It Is To Be

New England

What It Is and What It Is To Be

Edited by

George French

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Prepared under the direction of a special committee of the Boston Chamber of Commerce, consisting of Walter M. Lowney, chairman of the Trade Extension committee, George S. Smith, chairman of the committee on Manufactures, and George B. Gallup of the Publicity committee.

Prefatory Note

THE reason for this book is the desire of the Boston Chamber of Commerce to acquaint the people of New England with the country they live in, and furnish them with the means to acquaint others. It has been a fault of New England people that they have been keenly alive to the growth and development of all sections of the country except their own, and that they have had a better knowledge of all other sections than of their own. New England has been so earnestly engaged in developing the rest of the country that its people have had no time to notice the growing demand for development at home. Now there is an awakening. We are beginning to realize that there is here at home as much opportunity as anywhere in the country, and we are slowly finding out what that opportunity is.

This book is not a catalogue of the opportunities nor the achievements of New England. It treats of both. An effort has been made to show, in an impressionistic manner, what New England is and what it may be, if its people will turn their attention to the work of developing it with the same earnest devotion they have lavished upon the other sections. Statistics have been avoided, as also have eulogistic statements. That which is herein set forth is, so far as possible, plain statement of fact, and mostly well-known fact. The possibilities are all soberly stated.

If it is necessary to apologize for the manifest defects of the book, or for that of which it does not treat, or for that which it does not treat adequately, let the apology be that the editor is aware of more, and more serious, defects than the most determined critic can discover; and regrets them more keenly.

The editor wishes to gratefully acknowledge his indebtedness to every person who has assisted in the preparation of

this book, either by contributing to its pages or by suggestion or information. There are too many to admit of mention of all. Those who have contributed are: Mr. Edwin M. Bacon, Boston, the chapter on "Waterpowers"; President Kenyon L. Butterfield of the Massachusetts Agricultural College, Dr. E. H. Jenkins of the Connecticut Agricultural Experiment Station, Mr. H. F. Tompson, Seekonk, Mass., Prof. F. C. Sears of the Massachusetts Agricultural College, Prof. Charles D. Woods of the Maine Agricultural Experiment Station, Mr. William H. Bowker, Boston, Mr. A. W. Fulton, Springfield, Mass., and Mr. G. C. Sevey, Springfield, Mass., the chapter on "New England Farming"; Dr. J. A. Bonsteel, Washington, the chapter on "New England Soils"; Mr. Harold Parker, Boston, the chapter on "Good Roads"; Mr. Winthrop L. Marvin, Boston, the portion treating of textiles in the chapter on "New England Manufacturing"; Dr. David Snedden, Massachusetts Commissioner of Education, and his deputies, Messrs. Charles A. Prosser and William Orr, the chapter on "Education"; Mr. D. F. Edwards, Boston, the chapter on "The Industrial Boston"; Mr. Thomas F. Anderson, Boston, the chapter on "New England Summer Resorts," and data about the shoe and leather industries; Mr. George P. Morris, Boston, the chapter on "Religion"; Mr. Richard H. Edmonds, Baltimore, the chapter entitled "An Expert's Opinion"; Prof. F. W. Rane, Boston, the chapter on "Forestry"; Mr. James A. McKibben, Boston, the chapter on "Commerce"; to the chapter on "The New England States" Hon. Robert Luce, Somerville, Mass., Mr. Charles E. Julin, New Haven, Conn., Mr. Colby Stoddard, Newport, Vt., and Mr. J. John Buzzell, Boston, contributed; Mr. George B. Gallup, Boston, the chapter on "Publicity for New England." The New England Homestead, railroad officials, Mr. J. Horace McFarland of Harrisburg, Pa., school authorities, manufacturers and others have contributed photographs.

Boston, October, 1910.

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New England

What It Is and What It Is To Be

New England

The six states of the United States which constitute the arbitrary geographical section known as New England occupy a unique position in the history of the country, and have a story that teems with interest. No other section of the world has had so much that was consequential to do with the development of this era as has New England, or has done it so gloriously well. The reasons for this are partly natural, partly historical, and partly providential. Nature thrust New England out into the ocean in such a manner as to make it probable that whoever should come discovering from the Old World would be caught on her rocky shore. New England did catch the vital immigrants from Europe. That they were directed hither instead of to some other section of the eastern coast of the new Western World suggests the germ of the providential element in the story of our beginning, and history is slowly disclosing to us the great fact that the event of the birth of this land was an essential arc in the grand cycle of Christian civilization that Omnipotence was then bringing into view. We trace the workings of conscious design in the development of New England, looking backward in the light of history, and note the part played by physical location, climate, soil, race, religion, circumstance; and that greater than any other force, the aspiration of the human race toward higher civilization, which we are but beginning to understand.

While we are forgetting the old geographical divisions of the states of the Union, which classed them as North Atlantic, South Atlantic, Southern, Gulf, Middle Western, Northwestern, Southwestern, Pacific, etc., the distinction which has set off New England remains as precise as ever, and there is nowhere a disposition to forget or ignore the sectional classification. New England is a unit, in fact as well as in the minds

of the people of the world, and it is as a unit that it must be considered. This fact does not indicate that the people of New England believe themselves to be in any sense a peculiar people, different from the people of any other section of the country, superior or inferior to any other people of any other state or section. We are set apart, so far as we are differently located and circumstanced, to our advantage or disadvantage, and we are to make the best of the fate that has come to us through physical facts that we had nothing to do with making and economic facts that our forbears have created.

New England is the land of opportunity. It has the greatest potential future of any section of the country, for reasons that are obvious. It is no argument against the future of New England to say that it does not utilize its opportunities. No section of the United States does that. No state does it, nor any town. It has not been necessary to do so, and until it is necessary it will not be done. New England comes nearer to applying the intensive method to its industries and to its agriculture than any other section, and its business men are giving the subject more practical study and attention. They will be ready whenever the country demands more than the cream. They are now ready, in many lines, and there is a vast amount of work now going on in many other lines in the way of preparation. There are commercial bodies, publicity clubs, and various civic associations, which are doing the most valuable investigation work, and are sending into the country a constant stream of information and creating a steadily rising tide of enthusiasm. There are few towns but have some example of the new farming, in successful operation and demonstrating what can be done through the application of modern methods and scientific knowledge, some new factory projected, some new industry taking shape, or some practical plan for civic and industrial betterment engaging the constant attention of their citizens. There are many manufactories that are run upon the highest scale of efficiency, as that new profession is understood by its expert exponents. There are many mod towns — model in the sense that they are organized and ope ated upon good business principles, and have demonstrate

that it is quite possible to conduct the communal business of an association of citizens calling itself a town in as economic and successful a manner as the business of a private corporation can be conducted.

There are everywhere in New England evidences of the prevalence and the influence of the new spirit in business, and that this spirit exists and is manifesting itself in a practical manner is the most hopeful sign that New England has entered upon a new era in its industrial life. This new spirit in business is promoted by a new spirit in social and civic life. The people of New England seem to be seized with the desire to work for the common good, quite aside from whatever personal profit they may believe may ultimately flow from communal interests. This is being demonstrated in many ways, but in none with more marked effect than by the work of the associations of business men known variously as boards of trade, chambers of commerce, civic clubs, publicity clubs, and the like. A study of these bodies reveals the business temper and aspirations of the times. The work they are doing is different in aim and quality from work ever before attempted by such bodies, and vastly more practical and consequential. The organized efficiency of these bodies is of a high order, and is made possible by the unselfish personal service given by the members. A large proportion of the work of these quasi public bodies is of necessity of a nature which does not reach definite results — formative, suggestive, and advisory; but each of them has a roll of definite accomplishments which so much more than justifies its efforts as to warrant the belief that they will finally lead the way up to some form of industrial coöperation which will solve many of the painful and perplexing problems coming from the modern study of labor and social conditions, as well as those more definitely in the field of business.

It is the New England character that must be considered in dealing with the question of the development of New England. If there is a hindrance to progress in New England it is that same New England character, which has ever been loath to accept optimism for its guiding motive. The rocks of New

England make possible the distinctive flavor of the New England apples, and in like analogy it may be just to attribute the restraint of New England character to the influence and the unconscious memory of generations of contention with the hard natural conditions surrounding industrial life in New England during its first two centuries. There has been a certain grim liking for adverse conditions in the New England character which has operated to produce reluctant assent to optimism. The old-fashioned New Englander often chose the harder part apparently for the very joy of martyrdom. Not a few of the men of New England seem yet to feel the same impulse. It was long a part of the creed of our fathers that the flesh must be "mortified," and it was their inclination to reject whatever promised pleasure, ease, or comfort. Profit they were in the habit of accepting, if it came to them in obvious guise. They never would concede that one field was better for corn than another. If they elected to plant corn, and it did not elect to grow and ripen into a plentiful crop, the failure was charged up to providence — and the same field planted to corn the next year, and the next. The Pilgrims and the Puritans persisted in whatever course they believed was divinely marked out for them. They trusted the Lord to provide nitrogenous stimulant for their fields, and would probably have regarded the planting of inoculated clover as an appeal to witchcraft. We of today have plenty of the same spirit. We hope for divine intervention in the matter of the fertility of our fields, and we are inclined to be persistently stubborn in matters of custom and tradition in our business methods. Tell an ingrained New Englander that his old apple orchard can be made to produce twice as many apples as he has harvested in his best year and he will not believe it; neither will the average New England business man believe that the efficiency expert can so order his business that it will yield 10 or 25 per cent more profit. We are averse to the new, we do not like to experiment, and we believe that that which we are told must involve experiment because it is outside of our experience. There are in New England men who have for twenty-five years practised scientific farming, and made money con-

stantly, and their example has not induced one neighbor to adopt their methods.

Nature has made New England different from the other sections of the country, and the circumstances of their ancestry and environment have made the New England people somewhat different from the people of other sections. While a strong cosmopolitan tendency has been bred by modern conditions of business and life, and New England has participated in this trend, there are certain conditions which insure for us a marked individualism. In the not very remote past this tendency was fairly described as insularity; but that phase of our progression has happily passed, and we are now no more individualistic, as a section, than the peculiar climatic and industrial conditions force us to be. The problem we have now to face is involved largely in the full recognition of the nature and extent of the differences which New England has to consider; an estimate of those different conditions, and an assay of our ability and disposition to meet them. Not all of these conditions are such as imply disadvantages; but few of them are such. Many of the more consequential conditions imply advantages.

For a long time New Englanders were conscious that they were the leaders in the building of this nation, and at least half a dozen generations were bred up in that knowledge. From working out their own supremacy New Englanders went out into the wider nation and built it up, and so strengthened the feeling of adequate power which was their inheritance, even though that very process weakened the stock that was left at home, and began the erosion of race that resulted in deteriorated vigor and faltering initiative. The result was that there came over New England an era of halting effort, due to loss of primal vigor to the West, and the other newer sections. New England had scarcely begun to thrive when she was called to pioneer beyond the Alleghanies, and thence to the Mississippi Valley, the Northwest, the Southwest, the Pacific Slope, and finally to Canada. All this time, from the early pioneer days to the Middle West to this day of the Canadian Northwest, there has been a drain of New England

energy and initiative. The Pilgrims and the Puritans of New England were all pioneers, and they bred pioneers. There has ever been a call for New England to open other sections of America, and the call has always been heeded. It has been in America the call of the West, and the tide of settlement and enterprise has rolled toward the Pacific, and then northward into the great fertile lands of Western Canada. This tide started from New England, and though it has been reinforced from the South, and later from all the intermediate regions, as well as by the great stream of immigration from Europe and Asia, there has been a constant exhaustion of New England's vitality comparable only to the giving of her own life to her children by a mother. New England suffered, and suffered more acutely and fundamentally than ever will be estimated. The wholesale and continued transfusion of her best blood to the veins of the newer states could only mean the weakening of her own constitution and the limiting of her own development.

The westward migration of initiative meant such a breeding of the pioneer habit as necessarily must result in superficial and speculative work and habit of mind. So long as there was new land spontaneously to yield crops, so long as there were coming into being new towns and cities to demand growth and sustenance of trade and foster extravagance and ruthlessness, so long would the pioneer spirit run rampant and ignore intensive methods and sane propositions of growth. The stern pioneerage of the early New Englanders, when it was a hardy enterprise to migrate to Buffalo, pushed cautiously westward, and gathered spirit and vehemence with its successes, until it culminated in the mad rush for the gold of California in 1849. Since then sanity has been struggling for recognition, but the drain of New England has continued until almost the present time, diminishing in stress as the material that New England could furnish became limited and as the raw opportunity became somewhat abated.

It is not adequately accurate to speak of the breeding of the pioneer instinct in connection with the industrial migrations of the early New Englanders. This instinct was bred in

their race long before they began to go out from the early settlements and seek for opportunities to found other pioneer towns and states. It was their pioneer instinct that originally brought the Pilgrims to the shores of New England, and the workings of that instinct were so persistent and so powerful that they were drawn from one little community to seek for a site for another long before the first had settled into a condition approaching comfort or economic direction. It is illuminating to note the development of the motives which led these people from one crude experiment in civilized communal life to another yet more crude, and having less probability to offer for successful existence. The story is most lucidly and interestingly told by Mrs. Lois Kimball Mathews in her wonderfully interesting book on "The Expansion of New England." Of all the tales of crusaders and pioneers told since the world began there is none more interesting than this, for those people opened the world as they went from point to point, and they carried freedom along with them and planted it in every rood of ground they snatched from the wilderness and jockeyed away from the aboriginal owners. These pioneers were actuated by precisely the motives that actuate men of today in their pioneer enterprises. They no sooner settled into a township, or the crude form of a township, than some of them began to chafe at the restricting control of their church or the unyielding policy of the communal government they had themselves created; or they conceived that they had not sufficient land. While there were but few settlers to occupy all the land that lay within the limits of the imagination, these men complained that there was not enough, in so many instances and so persistently, as to suggest that at that early time the hunger for land was a dominating motive which operated to open new territory with sure and perennial persistency. These pioneers always advanced in groups. Certain families would find that they did not sympathize with the sermons of their minister, or protested against the rulings of their chosen officers, or discovered that they did not have enough salt marsh from which to harvest hay for their cows, or that their corn land did not yield as much grain as they

wished, or some other plausible reason would be assigned for the wanderlust that was sure to sieze upon them; and they would apply to the church for permission to move on. This tendency to migrate toward the west they brought with them, from their fathers and grandfathers in England, and wherever they went they took the habits and characteristics of their county in England. They based their new towns solidly upon the principles and forms they had brought from their first place of residence in America, and from the more unconscious inheritance from England, and the traces of these twin influences may be found in every town New England stock was instrumental in founding, from Plymouth to Seattle, modified and adapted to suit conditions, but there in the foundations.

There is in modern history nothing more significant than this march of New England from Plymouth to San Francisco, from Plymouth to the everglades of Florida, from Plymouth to Texas, from Plymouth to Los Angeles, from Plymouth to Alaska. There is in this spread of the spirit and purpose of the Pilgrims all the fixed and regular design of a Cook tour of Europe, all the calm persistence of a Napoleonic campaign, all the elements of the steady advance of a glacial drift. The only temporary check was in the early and weak first manifestation of the tendency, when the King Philip war turned the pioneers back by devasting their frontier.

The Pilgrims landed in 1620, and within seven years they were pushing out advance guards, and have continued that westward movement until within the past decade. There were eras of special progress, and times of hesitancy. Previous to the Revolution the progress was on a scale that now seems slow and halting. When that war seemed destined to end favorably to the colonies there was inaugurated what was the most considerable western movement from New England, and by 1812 not only had New England itself been pretty well settled but the flow of emigration had passed into New York and Pennsylvania and well over the Alleghanies. Thence the tide rolled on, and New England, having built that unique second self, the Western Reserve in Ohio, proceeded to pour her people into Indiana and Illinois and impress her ideas and

institutions upon those states, which had been pioneered in their southern sections by people from Kentucky, Tennessee, Virginia, and some other southern states. After the building of the Erie canal New Englanders went into Michigan and Wisconsin, but many of them were transplanted from New York and Pennsylvania; and perhaps here is to be placed the first recognizable work of the New Englanders who had originally settled in some other state and were therefore one degree removed from the stock on the mother soil. This second edition New England was thenceforth a very important element in the sweep of the original stock toward the western frontier. There is a close kinship between all these Middle Western states and New England, gained direct from New England, and through the New England dominance of western New York and more slightly of Pennsylvania. And the tide swept on toward the Pacific, and then deflected to the Canadian northwest and to Alaska, and in another direction to the Hawaiian Islands. It has leaped the Pacific, and is trickling into China, Japan, Corea, and the Philippine Islands, where it is likely to lose itself in the broader stream of Americans.

The history of Greater New England will not be adequately written until it includes a careful study of emigration as far westward as the Pacific ocean; and this is one of the most vital facts to remember when the industrial history and expectation of New England is being considered, and when the banal suggestion is made that New England is, or ever has been, industrially decadent. New England is now, and since the landing of the Pilgrims at Plymouth has been, the most vital element in the development of the lands and the industries of this New World.

Finally the national phase has changed. Now men are thinking about efficiency instead of discovery, about methods instead of opportunity, about intensive cultivation of that which is at hand rather than taking up new quarter sections, about developing placer and dredge mining in place of prospecting for loose nuggets of metal, about economies of production and better methods of selling and distributing as well as the building of new factories. A great industrial revolution is in prog-

ress. The question is not now wholly one of enterprise; it involves more particularly problems of economic production and distribution. The industrial and financial subsoil is being turned up, as well as the subsoil of the lands that were not long ago considered as inexhaustable granaries with unlimited holding capacity. From being considered and operated as gambling propositions, the various branches of business in America are being turned into sane and sound enterprises, based upon demand and economic supply.

The rise of this spirit has given New England its second opportunity, and as it becomes operative this section will again be esteemed for that which it can offer in enterprise and thrift. New England is ready and able to contribute more than its share to the newer conception of business, even as it did contribute more than its share to the superficial pioneer era. With all the drain upon the New England resources while the passion for the new and the raw was burning itself out there persisted a large modicum of the original thrift and inertia, and there was always the regenerative processes going on, to the end that we have never lost the power and habit of initiative. The rage for conquest did not exhaust the primitive stock, while it did perennially decimate it; so that it happens now that there is plenty of material to promote the new spirit of enterprise that is in motion, and there are reservoirs of special advantage that have been quietly filling during these generations of missionary work in other sections. Now that the refinement of scientific economics is being studied, and put into practise, we are able once more to offer to the whole country such perfect opportunity as is available nowhere else. But there is this difference, that whereas in the older time it was our youth that went out to other sections and developed the opportunities nature had provided, it is now that we have the economically available opportunity adequate for all the latent energies of the youth we are bringing into the field, and for the youth and enterprise from outside our borders that are coming to us.

The forces that have brought rich opportunity once more to New England are well understood. The general advance

of production has been forced by industrial conditions. The era of prodigal production has passed, or is passing. The questions that control are different. Demand has, in many lines, crowded so closely upon supply that many things not formerly thought of have become important. It is now the aim of economic production to place products into the hands of the ultimate consumer at the least cost and with the least friction. This means a careful consideration of manufacturing facilities, labor, transportation, and the availability of raw material. While manufacturing is shifting to meet these conditions it is agriculture that is showing the keenest appreciation of them. It was agriculture that made New England possible, and agriculture is likely to play an important part in making the renaissance of New England an accomplished fact. In a certain way, and to a large extent, manufacturing in New England may be said to have perfected its processes and realized its opportunity. In many lines New England leads the world, and the question of improvement in those lines involves the application of the new science of business to existing conditions. This new business science has to do with the making of two dividends where there was one, or the making of one where there was none; and it is in no sense peculiarly adapted to New England. That which is happening in New England agriculture however is the creation of a new industry. The old agriculture is dying, and its demise may be awaited with equinimity. It has had its day, and it has served its purpose. The new agriculture is a new business, a new profession, based upon real knowledge of the soil, the markets, fertilization, and the nature of plant life, along with the somewhat new belief that even in farming business methods are essential.

In the soil of New England lies its greatest opportunity, its largest potential wealth. It has been the belief of the people of New England that its soil, except for certain restricted areas, is too poor to repay intelligent effort in farming. It was, in the light of the old-time agriculture, which consisted in putting any kind of seed into any kind of ground, applying any kind of fertilizing and any kind of cultivation, and leav-

ing the result in the hands of God. Soon after the advent of the weather bureau, and the hostages to fortune that its knowledge furnished for New England farmers, there began to be preached a new gospel of the soil, which gave assurance that miracles almost could be wrought out of the poor New England soil. It was mostly a question of knowledge, and not primarily a question of native richness of ground. The raising of profitable crops of fruits was shown to be a question of care, fertilization, and spraying to kill the pests, rather than the selection of a foreordained site for the orchard. So also of other crops that had been neglected in New England because of inadequate knowledge, or too much information that was not so. Now we know that it is the demand, the transportation facilities, the climate, and other correlative conditions, such as affect all merchandizing, that it is necessary to study, as well as the adaptability of the soil. If commercial and climatic conditions are favorable, there are large margins of adaptability in the soil.

It is quite apparent that knowledge of the soil has been superficial. It is now possible to know exactly what any given soil is, and if the climate, the markets, and the requirements of the people within the zone of profitable distribution are taken into the account, it is not difficult for the farmer to decide upon the best crop for him to raise, and resolve his problem of success down to an estimate of his own ability and resources. But it is first necessary to know what the soil is. This cannot be determined by chemical analysis alone. Indeed, it is not safe to rely upon chemical analysis except as one of the elements of the necessary knowledge. It is of more initial importance to determine the origin of the soil that is to be dealt with. The simplest statement of the processes of soil formation is that it is formed through the action of the weather upon the land areas of the earth; that soil is broken fragments of rock mingled with organic plant remains. From this simple statement of a simple process the student is led to consider the nature of the rock that has been disintegrated, and of the changing vegetation which goes into the soil as a vital element; of the quantity and periodicity of the rainfall,

of the intensity and continuity of the sunlight, of the nature of the reactions of the chemicals loosened from the rock, of the distribution of local soils by rain, streams, winds, and originally by the glacial drift which so mixed the elements of large areas. It is not unusual to find the soil of a certain area quite foreign to the rock formation of that area, and foreign to any specific rock formation, owing, perhaps, to the fact that a glacier had there unloaded an accumulation taken on from the rocks of widely separated sections. Even this conglomerate of soil material may be covered by a layer of fine dusty soil which has been conveyed by prevailing winds from glacial deposits hundreds of miles distant. These varying characteristics, and others, are not found exclusively in distinct areas, large or small. Several radically different soils are frequently found on a small farm, or even on a single acre. The rivers are working all the time to carry from the region of their source the rock material there existing to the vicinity of their lower reaches. The vast prehistoric lava-flows in the northwest sections of the United States are being eroded, by wind and water, and the dust distributed far and wide to add another element to the problem of the soil. The minerals of the land are being washed into the sea, gathered into the shells and bones of marine forms of life, and eventually contributing to great phosphate deposits. The beds of disappeared lakes and ponds, and the floors that were once bottoms of prehistoric seas, furnish another variety of soil, and a new set of problems for the farmers.

It may well be thought that these problems are too intricate and too numerous for the ordinary farmer. The answer is that the farmer need not concern himself with their solution. The United States government, the state governments, the many colleges and scientific institutions, solve them for him. It is however necessary that the farmers of New England recognize the existence of these soil problems, and understand and acknowledge their relation to successful farming. If they do this they will seek for guidance along the lines of the modern conception of the nature, origin, and use of the many varieties of soils that are found everywhere.

New England farmer and manufacturer alike need to study the economics of their businesses. It is not saying too much to assert that the new knowledge of economics makes it possible for more than half the manufacturing plants in all the land to add a new dividend to their profits equal to, if not in excess of, the legal rate of interest, without reducing labor cost or the quality of material or workmanship. More than this may be said of the land. Business methods, with the new knowledge, applied to land may be relied upon to double the product of the New England farms without increasing their area. Intensive farming is not the whole story, though an interesting chapter, of the possibilities of New England land. If New England farming could be so reduced to a business proposition as to make the farmer a possible borrower of capital the longest step toward land wealth would have been taken. Much of the manufacturing and mercantile business of the world is done with borrowed capital, at least during the development period. It is not so with the farmer. He is not able to borrow a cent on his business, because he is rarely able to tell what his business is. If he borrows money it is on his real estate. If he was able to go to his bank with balance sheets covering a series of years and showing his actual net profit, and that all expense had been charged against the farm, he could borrow as much money as any business man, and he would not have to jeopardize his home. New England farms are generally too small. They furnish employment for but one or two men, and the returns are usually no more than the owner could make at day labor. There is in them, as conducted, no opportunity for capital. Their owners are independent only in name. They are bound more firmly, and they make less money, than if they were employed by large owners as superintendents, or in many cases even as laborers. The farmer who succeeds, by practising the most rigid economy and working "from sun to sun," in putting two or three hundred dollars in the bank each year believes that he is making money. Usually he is losing money, as he would realize if he were to attempt the disillusioning task of making a balance sheet. He would find that he was neither getting interest on his invest-

ment, paying for repairs and depreciation, nor allowing himself a decent wage, not to mention the other fixed, or overhead, charges. There is a strong tendency in New England to better this condition of neglect of business principles. There are many farmers who are applying business methods to their business, and who have that respect for themselves and their vocation which impels them to treat their matters as other business men treat theirs. This is the first and the most important step in the direction of putting farming upon a business basis, and interesting capital in it.

The fiction of "the decadence of New England," which has for many years been a favorite topic of critics of this region, and has been too much considered by our own people, may be dismissed with a few words of explanation. It has never had standing with well-informed people, and it could never be substantiated by those who dwelt upon it with the greatest unction. It is a fact — a creditable and glorious fact — that New England has contributed many thousands of its virile youth to the newer sections of the country, and has itself lost their services and been deprived of their constructive work. It is also true that for various causes there are in New England many farms that have become "abandoned," though there are now but few farms that are fairly to be classed as abandoned in the sense in which that term is used by our critics. Many causes have led to such changes as have resulted in the existence of unworked farms, and but a very small minority of these causes give warrant for the offensive conclusion that the existence of these dormant farms implies industrial deterioration as a decadent condition of the whole of New England. New England is the oldest agricultural section of the country. Its original farms were located when there was no general knowledge of the soil and climate, and no knowledge of social and industrial conditions as they might develop. There were many mistakes in judgment, and many due to lack of knowledge of the conditions that have since developed. The migration of the youth of New England toward the west led, naturally and inevitably, to the neglect of many farms, and, as the older members of the family died or became

unable to work the land, to actual abandonment, though the land might still be as capable of profitable working as ever. Those farms that proved to have been unfortunately located were abandoned for economical reasons. A few families disappeared in consequence of the strain of trying to deal with adverse conditions. Some farmers were incapable of initiative, and went down to extinction with the accumulating consequences of unwise choice of farm location. The very fact that the lands of New England are wonderfully diversified in quality and wonderfully varied in capacity accounts for many of the inevitable failures. If the soil of this section was of a predictably uniform character it is evident that the chances for unwise selection and disastrous location would have been tremendously reduced, and therefore a quite different construction placed by our critics upon our "abandoned farms" problem. The early settlers farmed for the purpose of securing a variety of crop needed for the consumption of the family. As soon as farming began to become a business of raising produce for sale the problem changed. When the time came for specialization, and many of the staples had to compete with the rich West, there was another and more vital change in New England conditions. All grains became unprofitable crops. Even corn could not be raised as cheaply as it could be bought. Butter became unprofitable, as it was made in New England. These radical changes in the market threw many farmers out of employment. They had not been bred broad enough to adapt themselves to the new conditions. Scientific agriculture was unknown. The market for milk, and many other things that now bring the farmers much money, had not developed. The natural, the inevitable, the economic, result was many abandoned farms. But it was not essentially a New England development. It affected all agricultural sections. It was manifested in New York, and the effect there was more severe than it was in New England; it affected Pennsylvania, and it spread all through the Middle West. Illinois, Indiana, and Iowa suffered severely. There were great numbers of farms abandoned in those states, and in other states, east and west of the Mississippi river. In Nebraska towns were aban-

doned. It is reported that more than 300 towns in that state were abandoned, some of them having attained to a population of 5000 or more. They died because, for one good reason or another, they were economic failures, exactly as some New England farms have been discontinued. But the record of New England shrinks to very modest dimensions when compared with the loss of 300 towns in one western state. Those towns were never resurrected, while most of the "abandoned" farms of New England have been again put in commission. Conditions have changed. Knowledge of agriculture has spread abroad. And, what is probably the most significant cause, there has come from Europe another stream of Pilgrims seeking freedom and opportunity, and they have taken many of the unworked farms and made them profitable. Today the "abandoned farm" in New England, which was abandoned because of loss of racial virility, is a myth, and, considered as a special New England reproach, it was always a myth. Practically all of these unoccupied farms have been held by actual owners, who have paid taxes on them and held them for some satisfactory purpose. The time has not yet arrived when it is competent for a critic to hold that because property is not earning dividends which seem to him adequate it is therefore abandoned. In strictness, an abandoned farm is one that has reverted to the state on account of long continued neglect and non-payment of the taxes assessed upon it. Of these there are very few in New England, and have never been more than a very few.

While there has been some tendency toward the diffusion of some of the New England manufacturing over other sections, there has been healthy growth and expansion, and there is legitimate opportunity for more. There are certain facts connected with the general question of manufacturing which are vital but which have not been given quite their due weight. It is becoming increasingly evident that the labor element is a fundamental one in any manufacturing enterprise. In New England there are several lines of manufacture that have been established for so long a time that there are sections which have become great reservoirs of expert workmen. This condition

does not yet exist in any other large section of the country, except in a limited sense and with reference to a few products. In textiles, shoes, paper, machinery, tools of precision, cutlery, jewelry, bookmaking, and many other lines, we have kept the lead. It is not to boast that this is mentioned, but to point out that there are in New England such unique facilities for manufacturing extension as are included in the many localities where there is labor skilled in certain branches, that has been acquiring more skill and increasing in numbers through several generations. This fact cannot be equally true of any other section in this country, as no other section has been for so long a time raising up these skilled workmen. This fact of the supply of skilled and settled workmen in various lines is a great manufacturing asset, and it is being justly appraised and will be fully utilized.

The waterpowers in New England are very numerous, and though it is understood that in certain localities they have fallen into the hands of companies or individuals that intend to speculate with them there are still many available opportunities for large installations of power-producing plants. The opportunities for smaller plants, suitable for producing power for smaller concerns or for lighting towns, are many, and they are attracting the attention of men who will eventually utilize them. Not long ago a scientific lecturer declared, in an address before the American Institute of Electrical Engineers, that "in the single state of Massachusetts more waterpower goes to waste annually than is found in Niagara itself." Subsequent investigation has shown that he greatly understated the matter. In Maine there is more undeveloped waterpower than in any other state in the Union, and in each of the other New England states there is so much waterpower which is not in use that it may not be exaggeration to assume that in the entire region there is enough potential waterpower ready to be harnessed to industry to light all of the New England states, make power for all their factories, and operate all their railroads. Nearly all of the rivers and streams have been made to yield their power to industry, and many of the water rights not utilized have been jealously claimed and guarded by legal

process. The Massachusetts supreme court records are loaded with decisions defining water rights, as are those of New Hampshire, Vermont, and Maine. Big companies own many of the larger privileges, and of late some of the rivers and streams have been bought up from source to outlet by speculative interests. Yet there are many opportunities not secured, so many that the aggregate is almost unbelievable. Nor does the opportunity stop at the enumeration of waterpower privileges, large and small, wholly unutilized. Many of those that are utilized, up to the limit of availability at the time they were put in service, might now be made to yield 100 percent more power. Few of the millwheels now yielding 15 horsepower but might be made to yield 30, under the right conditions.

The Blackstone river, flowing from Worcester, Massachusetts, to Narragansett Bay in Rhode Island, is perhaps the best harnessed river in the United States. Its banks are loaded with more than 100 mills. It is 45 miles long. Its value, in waterpower used, figured on a coal basis, is reckoned at $25,000,000. That is to say, the work that the river does if done by coal would cost 4 percent of something over $25,000,000. Most of these mills use the waterpower to supplement steam, having become so large that the waterpower, as it is utilized, does not give them power enough. Waterpower being so much cheaper than steam it would naturally be supposed that it would be utilized to near 100 percent of possibility. An engineer who has made a life study of Rhode Island streams states that not less than half of the water of the Blackstone goes to waste in ordinary times, and that many times its potential power goes to waste in times of freshet. The ordinary half loss occurs nights and holidays, for lack of storage facilities. Figure the actual power of this river for a whole year and deduct the power utilized and it would appear that the best-harnessed river in America is so poorly harnessed that the vast proportion of its potential power flows idly into the ocean. The full significance of this fact is known and appreciated by the mill owners. They have plans and surveys made for great reservoirs on some of the Blackstone's tributaries to store freshet water to give their power plants more capacity. Even

this expedient will conserve but a moiety of the lost power. That would involve an industrial revolution of great magnitude — the adoption of such drastic intensive methods as the operation of plants during the whole 24 hours of the day.

Another example, by way of illustration, is the Deerfield river, in western Massachusetts and Vermont, which has a total fall from source to mouth of 1162 feet. Its least discharge during the three summer months is 500 cubic feet per second. During the spring freshets this discharge rises to 28,000 cubic feet per second, 56 times the summer normal amount. But 15 per cent of the normal flow is utilized. This is a pretty busy river, but it is seen that only a little more than .02 per cent of its potential power is used. The possible use is not represented by this view, since there are many good dam sites not now in use, giving opportunity many times to multiply the gross power that may be utilized.

These examples, drawn from busy streams, give faint conception of the enormous possibilities afforded New England manufacturing enterprise by the unused waterpower in the six states. To express that opportunity in figures would be to dazzle the intellect. For all practical purposes it is illimitable.

Careful examination of many lines of business reveals a condition much like that which has been indicated in the fragmentary manner of the preceding pages. Some of the grounds for the attitude of the New England optimists will be more specifically stated in succeeding pages.

It is not possible to neglect that which is one of the vital and effective agencies in the building of this section, the matter of education. Not, let us understand, the schools as schools, nor the work of the professional educators, as educators; but, if we can grasp a thing so intangible, the growth in the minds of men of that impulse making for progress which is the real power behind whatever of progress it is possible to record or to hope for. Wherever one goes in New England, with an open mind, there are found many concrete examples of the workings of the new spirit which is transforming the whole region from whatever it was in the way of conservatism and stagnation toward whatever the optimistic estimate of its future may be.

It is characteristic of New England temperament, ancestry, and historic inclination, that when the impulse of progress attacks its men they should seek first to instil the principles of the mental attitude which must furnish the motor force for the realization of the new conception of industrial progress, to infuse into the people the cultivation necessary for the proper development of the new spirit in business. This is an unconscious motive, an instinctive reliance upon character and breeding, which has come into its expression without direct plan or specific attempt to correlate it with the hoped-for material progress. It is the racial habit of New Englanders to appeal to associated and communistic effort, and the developmental movement that is so evident in every part of the country is working here in New England in a manner which bids fair to direct expression through a peculiar but intensely practical mutualism which has for its object the improvement of civic life and the development of business. This is everywhere in evidence. There is scarcely a town or village, or agricultural district, within which there may not be found some sort of organized effort to better actual conditions and promote business. These organizations differ in form, in stated purpose, in method of work, but they are one and all trying to accomplish the general purpose of definite betterment through coöperative work, through the device of federating the individual conception of the newer conditions and the individual desire to take the fullest advantage of the benefits offered to industry through the recent revelations of agricultural and industrial research and the tremendous growth of the markets. In some of the cities and towns there are boards of trade, chambers of commerce, commercial clubs, publicity clubs, or associations bearing other names but identical in purpose. In others there are men's church clubs or distinctive civic clubs. In many towns there are no clubs or organizations, but there the spirit is at work through some one vital citizen or group of citizens, and not infrequently through the town government itself. The churches are yielding to the spirit of physical and business betterment, and it is not unusual to find them systematically studying the questions connected with the betterment of their

towns in their Bible classes, their week-day meetings, and in other ways. The public schools are seething with the spirit, and in many of them it goes so far as to organize the pupils into miniature civic clubs through which the whole theory and practise of municipal government and development is taught. All over New England there are special schools for the teaching of specific trades and industries, and the towns and cities are more interested now in the study and development of vocational training than with any other phase of the educational problem; and everywhere that there is attempt toward vocational training there is the coincident attempt to turn that training to the specific advantage of the local industries. This is especially true of the agricultural colleges, high schools, experiment stations, and the work of the Grange and the agricultural and horticultural societies, many of which have the aid and countenance of state governments. The work being done by these agencies for agricultural education and training is of vastly more importance and significance than is generally understood. They are reconstructing the industries connected with the land, and spurring and fostering individual initiative and enterprise in a manner at once astonishing and gratifying. They are inspiring and directing a very marked movement of private capital toward the business development of the land. Everywhere business men are using their spare capital in buying and developing farms. It is exceptional to sit at a country hotel breakfast table and not hear some man relate his experience with this fascinating business. It is talked in Pullman smokers, and wherever men gather.

And it is not altogether the farm that attracts the business men toward the natural resources of New England. They are taking up the study of the waterpower wealth that lies invitingly half developed all over our hills and valleys. " A few of us have bought up the river for the ten miles nearest our town " is a remark often dropped by the busy lawyer " on circuit," or something like it by some busy man of affairs. So also of other natural business opportunities, and opportunities for manufacturing. The minds of the live New England men

are turned toward development in New England as they have never before been inclined during the whole of our history, and the visible fruits of this tendency are beginning to be very much in evidence.

One of the greatest natural assets of New England is its adaptability for summer residence. This is not a newly discovered asset, but it is evident that it is to be promoted in a new and better way, and that the development is to be along lines not until recently developed. The areas especially adapted for summer residence have not been utilized to the extent of 10 percent, probably not to the extent of 1 percent. In this particular New England has no rival in America. Whatever may be said of other regions, and there are several regions that present very great summer-resort attractiveness, there are no sections that in any sense compete with New England. Its offerings are unique. Therefore the lines along which their development should proceed should also be unique. There is nothing in the way of New England's assets which would be likely to respond so readily and generously to the proper promotive treatment as the summer-resort business. It is large, and it is unique, but it is to be said that it now exhibits the need of new methods and different conduct. Many causes have operated to change its character within the past few years, and none more than the rise of the automobile. The managers of the railroad doing the bulk of the summer-resort business in New England assert that at some points as many as from 60 to 70 percent of the visitors arrive in their own motor cars. This fact is significant of the situation. The motor car promotes flexibility in summer resorting. It makes frequent change not only possible and easy but almost inevitable. Many of the resort houses have become of indifferent quality through wear and tear and the rise of new demands. The present day resorter is not inclined to accept that which he once was satisfied with, in room or table accommodations. A too large proportion of the summer hotels have not kept up with the times. They should be rebuilt and their menus should be radically reformed. There is a decided tendency also to look with less favor upon the resorts that are located remote from lines of travel and towns.

TYPICAL NEW ENGLAND FARM HOME

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The auto has brought this about also. Whereas in the old days, when it was necessary to rely upon the horse for local travel, people resigned themselves to isolation for the sake of being near the mountains or the fine beaches, they are now less inclined to do so. The motor car has changed that. Now resorters may locate where they can have the benefit of the facilities of a town and also place themselves in daily touch with the natural beauties of all the country within a radius of 50 miles, or even more. So the towns in the vicinity of resort areas are likely to be given more consideration. This is a mere detail of reconstruction. The great fact is that the mountain and seacoast regions in New England are for it an asset of the greatest value, actual and potential, and there are plenty of indications that they are to be intelligently developed.

No competent estimate of the money value of the summer business in New England has been made, and it is difficult to make even an intelligent guess. If we were to estimate that not less than 50,000 people go to the White Mountain region in New Hampshire, each season, for a stay of a week or longer, we would probably be guessing well under the fact. But 50,000 people staying a week or more must of necessity expend more than $5,000,000. Probably the facts are that there are many more than that number in the White Mountain region every season who stay a week or more, and probably they average to spend more than $100 for their holiday. And the White Mountains form only one of several mountain regions, while there are the seashore resorts and the innumerable other summer outing places to be considered, as well as the thousands of people who go here and there, attracted by personal inclination, kinship, memory of youthful days, or some other reason. It has been the rule for several years that resort regions have reported unsatisfactory business, mountain and seashore alike. Yet the people continue to visit them, and in increasing numbers. The reports of failing business come from the hotels whose managers have not realized the change that is coming over their business in consequence of the automobiles and the disposition to seek for distinctive and personal facilities. Ownership of country places has been an element that has

drawn from the hotels and at the same time given a permanent character to resort regions. A great many men have purchased places and improved them with houses ranging from simple and inexpensive summer cottages to costly and elaborate country residences. The extent to which this movement has attained cannot be realized except by going through the resort sections and noting the succession of individually owned estates. This feature of summer life is spread all over New England. There are few towns, having any pretensions to beauty or attractions of climate, which do not boast of from one to a score of summer places. And this disposition is becoming more and more manifest as time goes on. It is stimulated by the return-to-the-land sentiment. The thrifty town dweller unites the resort idea with the scheme to build up a good farm as a property proposition, and while he and his family are enjoying the country air they are at the same time looking after crops that are to furnish their table during the coming winter with fresh vegetables, and often with eggs, poultry and pork. The facts of the resort situation give, therefore, no ground for concern on the part of the well-wisher of New England. The shadow that rests upon it, if indeed there is a shadow, is a question of enterprise and expediency for the hotel and transportation men to deal with. Broadly considered, the summer resort business is every year becoming more of a factor in the prosperity of New England, and if it is also becoming more of a business proposition for the visitors, that is a matter for rejoicing. Every man who buys a farm for the purpose of having a summer home in New England, wherever his business may be located or wherever his winter home may be, becomes more of a New Englander than anything else, and may be depended upon to boost New England to the extent of his ability and equivalent to his satisfaction with the New England climate and character as he sees and experiences them.

New England has been the nursery of literature, art, and music, in America, and remains such. It is no special merit that these arts began here, since the country began here, but it is notable that they persist here in as strong and virile initiative as ever. It is sometimes asserted that literature has de-

serted New England for New York, and even for Indiana or California. There is not the shadow of plausibility in the suggestion. That other sections of the land have bred writers, that the business of distribution of books has been divided with New York, matters not in the least when we are considering the maintenance of standards and quality in New England. That we have lost in literature in a proportional sense is true, and none have more pride in that fact than we. The other sections have advanced to that degree that they are now producers, and their ratio of advance is reckoned from the zero they registered only some few tens of years since. The literary manifestations everywhere except in New England have been sporadic. Even in New York there is but little literary productiveness which did not migrate there from New England, directly or through one or more ancestral generations. Yet we are not insistent upon our absolute rights in this. We glory in the growth of literature, music, and art, in all the country, and insist upon no more credit than acknowledges our ability and constant desire to maintain our historic standards. Boston, let us assert, remains the literary and bookmaking city of the land, while New York has become the bookselling headquarters and has induced many writers from all sections to locate and prosecute their vocation there. From Boston there flows a constant stream of the best books produced in the world, and from Boston the best, and the only, strictly literary monthly magazine continues to be published. While there may be some question about the bulk of educational books, whether it is greater in Boston or elsewhere, it is certain that from Boston there is sent out the larger proportion of educational books that are strictly consequential. When it comes to the matter of manufacturing books Boston takes the lead. It has the three concerns which are more notable than any others, both as to the quality and as to the bulk of their product; and it has half a dozen others that are second in rank only as to their volume of output. It has the distinction of being the home of the best commercial and de luxe bookmakers in the world, and of producing the finest books marketed anywhere. In music Boston has the most notable orchestra in the world,

and the most deserving music school. It has the second largest musical merchandize house in the country, which is also probably the most prolific publisher of music. Boston, and in lesser degree New England, is permeated with music in its most artistic and delightful manifestations. It is the original home of the chamber concert, and during the season the events are so numerous that the devotee is obliged to exercise rigid selection. Barring grand opera, it is not too much to claim for Boston that out of it comes at least three-quarters of whatever is of real worth in music, and that it produces more good music every season than any other city in America. This is not because there is any conscious attempt to make of the city a musical Mecca, but that the people demand the service of melody that is always being served up to them.

In art, it is more the appreciative faculty that guages a people. Artists are so few that it is never just to assert that this region or that is the more prone to produce them. It is the region that knows and possesses art that is the artistic region. New England has produced its quota of artists, and it possesses its proportion of works of art. That its people are, as a class, artistic, it would be folly to assert. No people are artistic. It is only the slender proportion who are capable even of feeling the meaning of art. New England has its proportion of these artistically inclined people, possibly more than its numerical proportion, and it has many industries that are reckoned producers of works of art. It has the most notable museum of art in America, and it is utilized by the people. New England lends itself to the cultivation and propagation of esthetics, naturally, historically, climatically, educationally, and racially. To these states come the men who write, the men and women who paint, those who wish to become finished musicians. To these states come those who wish to live within the zone of the best development of literature, music, and art, in America. We welcome them, but we do not so much glory in the fact that they come as in the fact that New England is such as to invite them — not indeed specifically because of those returning pilgrims so much as because of those who are and have always been with us, and must here remain. It is that

these ameliorations of life are so free in New England as to be the common possession of all, and that they owe their existence to the tastes and requirements of the great bulk of the people. It is that New England, as a definite section, is literary, musical, and artistic, that gives the prevalence of those arts their vogue here. That this is so is indicative of the nature of the people, and has an important bearing upon their ability and capacity in business. New England thrift is manifested even in the esthetic development of the people, and manifested in the true New England manner.

There is reasonable ground of justification of the belief that New England is about entering upon a new era in its history, so far as its material development is concerned, and that a great industrial future is rapidly taking shape. Many of the elements that have tended to keep it in the conservative atmosphere of the past are also of the past, and the constructive and pioneer spirit of the Pilgrims bids fair to resume its influence under the newer conditions. It is fair to assume that New England is to show that growth which comes from initiative and knowledge of new business conditions, put into practical operation by enterprise attracted by opportunity. It is not longer destined to be content with the residuum of its best human product, while the vigorous proportion is drafted to develop other sections of the country. That there is a decided drift of enterprise to New England is the most hopeful sign now apparent. The men of New England have always been its greatest asset, and the greatest asset of the nation. Now it is apparent that the keen-eyed and restless enterprise of the men of America has convinced them that there is a field for them in New England, and we find men turning to this section because they perceive that here there is a fair chance to reap the large rewards they seek. A study of conditions and tendencies in New England reveals a strong probability that the men of the six states are justified in expecting that all of the great staple industries will greatly increase in production, and that business and wealth will multiply themselves. While the market will continue to demand greater supplies, it is evident that now there is an outlet in New England for greatly increased New

England production. In some lines of produce our markets are supplied with but a fraction of the demand from our own production. New England should produce, for example, poultry and eggs for shipment to other sections, being admirably adapted for that business, whereas it actually does produce but about one-fifth of its own consumption; and something comparable to this is the fact in many other lines of production. The hopeful consideration is that New England people are now awake to this condition, and are busy remedying it,

A NEW ENGLAND TOWN HALL

or preparing to remedy it. New England is industrially in much the condition the Middle West was after the war of rebellion — a fertile and inviting field for pioneer enterprise; and that fact has come already to be so well established that there is a tide of immigration setting into New England from other sections of the country, which is supplementing the gain through the check to emigration and joining with those of our own sons who are turning to the home opportunities for their careers and their prosperity. New England is thus receiving that infusion of vigor it has long needed, and is already responding to the stimulus.

New England is also receiving treatment conducive to its betterment in the way of publicity of the right kind. The people are being told of the new possibilities for enterprise,

and their faith in the section as a promising field for profitable enterprise is mounting. We are being told what can be done, in the way of money-making in agriculture, and we are referred to specific examples. We are assured, by coldly-figured reports of actual accomplishment, that great dividends may be made in apple-raising, in raising peaches and plums, in potato-raising, in sheep-raising, in hay-raising, in small fruits, in gardening, in stock farming, in hog-raising, in poultry-raising, in timber-growing, and in other specialization in crops. In many of these lines we know there is being more money made than is made in manufacturing — a much larger percentage of profit and smaller percentage of risk. And we also know that in many lines of manufacturing the new opportunities that have opened for New England are being utilized with great profit. This knowledge is making it evident to the observing that New England is just looking through the door to a wonderfully bright future. We can see that trade and manufacturing and agricultural tendencies are gathering a momentum which is carrying us swiftly and surely toward an industrial future which will double and treble and quadruple our output of staples. It is not simply a hope; it is cold calculation based upon actual progress, and the sordid observance of tendencies manifested in terms of performance. We are now doing those things which are to produce the enlarged conditions we foresee. We have not been too prone to see these signs of promise. We have been obsessed with the stale idea that New England was a sucked orange, with respect to its human enterprise and its opportunity. We have not taken the pains to look into the matter. Now there has arisen in the economy of the world a great need for the latent wealth of New England, and along with this need has come the new methods and processes that enable that power to be utilized; and there has come into the minds of men the vision and the prevision necessary to turn the latent wealth into supplies for the new needs.

The Charm of New England

With the New Englander, resident, expatriate, or descendant, the charm of New England does not have to be stated. It is chiefly quality rather than condition, and does not come easily within the limits of spoken or written words. Physically, it ministers to that love of variety in beauty which is implanted in people, and is stronger with those who are not conscious lovers of that in beauty which most readily lends itself to artistic analysis and statement. The natural attractiveness of New England is of that order which appeals to our instinct for beauty. The mountains, the forests, the rivers and their valleys, the lakes, the conformation of the land everywhere, the seashore, the eastern background of the illimitable and mysterious ocean, the capricious, but mostly charming and always health-giving, climate, tell their own story and make their own appeal. They require no sophistication, they admit of no formalization or artistic setting devised by man, they need none of the terms of art in description, nor any artistic knowledge for appreciation. They are, as a matter of fact, indescribable. He who attempts to portray them in words falls into a slough of verbiage and flounders in a pit of vain attempt. The scenery in New England embraces examples of about every variety that has ever charmed beholders, from the grandeur of the mountains of New Hampshire and Vermont and Maine to the pastoral beauty of the stretches of the fertile valley of the Connecticut, and from the placid lullabies of the long reaches of sandy beach on the shores of Long Island sound to the turbid grandeur of the tumultuous sea along the craggy coast of Maine. There may be, somewhere in the world, varieties of scenery which are not found in New England; there may somewhere be beauties of seashore which are not duplicated somewhere along our coast line; there may be more peaceful and fertile valleys, and more picturesque farming lands; but they

have not been brought to the attention of the world. We make no claim to excess of size, dominating heighth of mountains, awesome depth and extent of cañons, world-beating capacity of harbors. We are speaking of that quality in these manifestations of nature which gives great and lasting pleasure to the beholders. New England is, in this respect, the world in replica, sometimes in comparative miniature. Yet its extent is as large as the mind can compass. It does not inspire with awe, and daunt the imagination. It pleases the esthetic senses and it gladdens the heart. Its mountains and seashores give health. Its valleys give wealth. Its streams are lovely, and they turn millions of mill-wheels. Its acres are beautiful, while they yield bountifully at the behest of the wise and industrious husbandmen. Nature in New England is a perpetual inspiration. She exacts labor for her fruits, but she gives freely of her abundant beauty.

The beauty of nature is one of the leading assets of New England — a charm that pays large dividends. Not only does it promote an enormous summer-resort business, which brings to us many millions of dollars each summer, but it adds an appreciable value to every man who lives within our borders. The farmer is a better farmer for the influence of the mountain which may bound his view in some direction; or for the lake to which he may resort for fishing, rowing or bathing; or for the river that meanders through his farm; and his farm itself is likely to be a Corot picture if located in one of the valleys, or a scene fit for a painter of mountain views. Likewise, many of the manufacturing cities and towns are located in the midst of interesting scenery where it is possible for the operatives to be under the constant influence of Nature in her most ameliorating moods. It is no more than a short trip from any of the New England cities into the midst of scenery which cannot be surpassed for placid or grand beauty. This has its effect upon character, and to it is to be ascribed at least a moiety of the quality of New England and New England people.

Other sections of the country boast of one or two good things, in the way of natural charm, but New England can scarcely catalogue all hers. California has sunshine and a

background of blue mountain chains. Florida has summer temperature in winter. The Middle West has the effect of limitless space. The Rocky Mountain region has terrific mountain scenery. Minnesota and Wisconsin have their thousands of lakes. Arizona has the Grand Cañon. And other places have their peculiar charms and advantages. The only other portion of our country that could pretend to vie with New England in variety of charm may be portions of New York, Pennsylvania, and the Blue Ridge region. The latter would be our greatest rival were it accessible and exploited. It is not easily seen. One must ride a horse or walk miles to get a glimpse of a charming vista, a lovely valley, or a waterfall. But he who may freely choose his home in New England may locate it where the pounding of the ocean upon granite shores is always in his ears; or he may dwell upon a mountain top, look down upon the hills and valleys, and listen to nothing but the winds. He may bask on the sands of Cape Cod, or wade knee-deep in the clover fields of Maine; or he may watch the serried ranks of the tobacco in the fields of the Connecticut valley. He may establish himself upon some breezy hillside, or elect to place his house by one of a thousand lakes or rivers. He may choose among a hundred quiet villages, with elm- or maple-shaded streets, or he may settle into one of the scores of larger towns or small cities. If he be in search of sport, he can trawl for muskallonge and pickerel in Lake Champlain, lure the shining trout from the streams in northern New Hampshire, Vermont and Maine, or look down through the limpid waters of Rockport harbor and see the two-foot cod taking his siesta on the bottom. He may pursue the fickle moose and buck in Maine, and he may bag the wary partridge in any of the four northern states. He may play tennis at Newport or Longwood or Lenox, or golf at Bretton Woods or almost anywhere. The New England seacoast is the most varied and charming of any in the country. Along Connecticut, Rhode Island, and the cape portion of Massachusetts, it is generally sandy, the shores low, and the water warm enough for bathing in summer. Generally north of Boston the shores are "stern and rock-bound," and the water is colder. When Maine is reached

coniferous trees predominate, and the coast line is much broken with innumerable bays and inlets and islands, along and among which coastwise steamers constantly ply. Lovely summer colonies are sprinkled all along the coast, and many of the sightly promontories are crowned with great hotels or fine villas. It were vain to try to enumerate the rivers and lakes. There are but three navigable rivers, and they are open but for short distances: The Connecticut to Hartford, the Penobscot to Bangor, and the Thames to Norwich. The waters of New England are naturally clear and limpid. Some of the rivers are polluted with sewage and mill waste, but they are being purified as rapidly as is possible. But two of the lakes are polluted with sewage, and they not materially. The brooks are a delight, because of their picturesque environment and the sparkling purity of their waters. The rivers add their picturesque element as well as turn the innumerable water wheels for factories and to generate electricity for light and power. Our forests have gone into the paper mills, for the most part, and to the match factories; but there are some large sections left — one in Maine that is still untouched is larger than the famous Black Forest in Germany. When forests are cut off the scar is quickly healed with a second growth, if the land is not put into agriculture; and now the big paper companies, the railroads, and many private owners, as well as the state governments, are doing a great deal of reforesting, so that the outlook is good for a restoration of our prestige as a lumber region. New England is made of mountains and hills and the valleys between them. They are everywhere. There is absolutely no level country, as there is in other sections. The valley of the Connecticut is the nearest approach, where there are plains several miles wide, but there are hills in the midst of them. Mount Tom and Mount Holyoke rear themselves from the plain. It is only in the White mountains that peaks rise above the timber line, and there may be found mountains to satisfy any craving for grandeur, and there can be found plenty of untamed nature. Some of the peaks in the Franconia and Presidential ranges are as wild as the most inveterate mountain-climber could wish. It is useless, and impossible, to at-

THE OLD OAKEN BUCKET AT MELVIN, N. H.

tempt to enumerate the lesser mountains and the fine hill-and-valley scenic gems. In the Berkshires, and the same ranges in Vermont where they are called Green mountains, can be found scenery as fine as the world affords — not awe-inspiring, but beautiful. The hills are rounded and covered with verdure, and in the valleys lie towns, villages, farms, streams and lakes. The valleys must be seen. So of all New England scenery: Words are colorless; it must be seen, studied, lived with, loved.

Even the climate of New England, much maligned by some who have felt its pinch in winter or its dry scorch in summer, is indeed the best climate in the world, if to its diverse and often fickle charm there be added its man-building power. It is necessary to know our climate and be able to coördinate its influence to the traditional virility of New England character if it is to be truly estimated; it is necessary to consider it as summer and winter, and in the light of a series of years. It is indeed also necessary to be very forbearing, as it tries the patience and the faith of the critical, and those not inclined to consider averages and ultimate results. But our climate is a large element in the New England character and the New England race. It makes hardy, clear-headed, robust, tolerant, active, virile, men and women; and no better product can be hoped for in any climate. And it is in itself charming. It not only makes for health and physical stability, but it nurtures the esthetic and the moral nature. "Variety," we are assured, "is the very spice of life." We have variety of climate, about as much variety as the world furnishes. We have touches of the tropics, and touches of the arctic regions; we have the chill wet of the California winter, and the scorching drought of the Arizona deserts; we have the snows of Russia, and the balmy days and evenings of the Riviera. There is nowhere, so far as contemporary records inform us, varieties of climate which are not sampled in New England, and there is no bodily ill which may be corrected by change of climate that may not be made to yield to some one of our climatic conditions. The climatic ills with which we are inflicted in one section disappear when we migrate to the antithetical region. The mountains

correct abnormal tendencies induced by the sea, and the sea is the antidote for the ills bred in the mountains. And everywhere is that infinite variety which stimulates and soothes, which delights and satisfies, which ennobles and builds character.

The historical charm of New England is scarcely less potent than its natural charm, and touches all good Americans with the same spirit. The native New Englander feels the honor involuntarily bestowed upon him as something akin to personal merit, and is prone to mildly exalt himself before men. If he cannot spy out his lineage back along the dimming genealogic trail leading to the Plymouth beach and the deck of the *Mayflower*, he seeks to discover direct or collateral connection with some of those whose historical vision may be clearer, more definite, and better authenticated. There are many desirable sources of ancestry in New England history, and plenty of potential consolations for those who feel that they are indeed of the blood, but may not peer so far into the past as the *Mayflower*. There are the various expeditions to found new states, undertaken willingly or under certain duress, as the migration of Roger Williams and his friends to Rhode Island; there are the various wars, such as the several collisions with the Indians, the Revolution, the war of 1812, and so forth. These latter were not strictly New England affairs, we are forced to admit, but certain of the chief actors were natives of this section, and that is a fact not to be forgotten by either direct or collateral descendants; and many of the most stirring events of the great war for independence were fought on New England soil — the battle of Bunker's Hill, we do not forget, decided the liberties of the American Colonies. We see now, down the vista of history, that it did, and we delight to remember that Washington made that declaration when the news of the fight was brought to him, and clinched his opinion at Dorchester Heights, some months later. We concede, with generous pride, that the Revolution came to a dramatic and glorious end in Virginia; and we realize that it was the glorious end of a struggle begun in New England. We like to hark back to that war, and those

of us who can trace a direct relationship with any of its heroes remind others of that fact with the occasional sight of modest buttons on the lapels of our coats, and regale the world every year with reports of fervent dinners.

But these things are but the embroidery of history, the pleasant devices we adopt to keep vital within us the spark of patriotism that was in those days of the past fanned into such roaring flames by men who blundered into the rôles of tyrants. That in the history of New England which most attracts us of today, which constitutes its principal charm for us, is that it is the story of the germination of a great nation, and more even than that: that it is the story of the beginning of the greatest and most significant era in the world's history. The little knot of Pilgrims who were led out of Holland to America were the pollen of that great and fragrant flower, Civilization, and they were rudely shaken off their parent stalk, after the fashion of Nature, by harsh and hostile forces, that they might seek out and fertilize the, to then, barren and undeveloped blossoms that were ready in the western hemisphere. As this story of the making of the newer and greater world on this western hemisphere recedes into the past it takes on a new and different character. It becomes softened as to outline and definite as to motive and purpose, and we see in it something more than the fighting of battles with Nature and with tyrannical rulers, something more than the winning of freedom for the people who even then felt that they were destined to create a great race and build a great nation. We see the greater plan to loosen the bonds of thought, of intellect, of aspiration, of religion, of science, of imagination, of art; in short, of all the forces that make for higher civilization, fuller life, greater opportunity, and the bourgeoning of humanity. In the light of this truer view, the throes of those early days in New England both shrink and enlarge. It is seen that they were of little consequence, in themselves as throes, but that they were the birth pains of an era of the world. We of New England do not desire to monopolize these hallowed historical memories. We realize that we have a very large interest in them, and that it was in New England that the initiative was

first and most emphatically made manifest. There are other sections that can claim almost coincident settling, but none of them received this pollen of freedom and progress that came to New England with the Pilgrims, and landed on Plymouth Rock. While we are not inclined to take credit or unction to ourselves on account of this fact, which we are certain was arranged by that Providence which orders the courses of the world, we do take just pride in the other fact, that we are of those who were the instruments of that Providence, and that we are now permitted to live within the aura of the first physical contact of that radical principle of human freedom and progress. It constitutes one of the most potent of the charms of New England, which has been distributed into the uttermost parts of these United States and is now as much their heritage as ours.

Yet, despite the spreading over all the country of the people of New England, there is now in New England more of the original character that has made it distinctive than even we ourselves appreciate. New England is yet emphatically New England. There have come to us hordes of people from other countries, and there have gone from us other hordes of our own people to other sections and to other countries. But there remains a great majority of the old stock. Not only have the newcomers not spread over all the land, but they are gradually being swallowed up in the historic New England. The change that has come over us on account of the new people who are coming is not as great nor as permanent as we are wont to believe at times, when we come closely in contact with the new elements. It is always to be remembered that the new people come from the same countries that our fathers came from, many of them, and that the motives that send them here are, in many cases, even more pregnant with a desire for human freedom than were the motives of our fathers. They fled from religious intoleration and from material oppression, but the intoleration and oppression that is driving the Poles, the Russian subjects, and the northern Europe peasantry generally, to this country is more real and much greater. In former years the Irish fled from conditions

worse than those that drove the Pilgrims hither; and the Italian and German peasants are not leaving beds of industrial roses to come to us. These people, who come here to escape intolerable conditions of life, are contributing to the charm of New England because they are doing for themselves almost exactly what our fathers did for themselves, and because they are assimilating themselves into the life of New England. We are prone not to remember facts when we think of the immigrant problem, as we call it. We have taken possession of the country, and have imposed upon it our language and our habits. We have not changed much. We came with the English language, with our religion fixed, with our dress, with our ideas of social life, with our ideas of domestic life, with our framework of law, with our industries. We have all these now, and we mean to keep them. Not only that, but we mean that everybody who has come here since we came shall also adopt them. And they are doing it. That is distinctively one of the charms of New England, that its character is not being eroded away by the people who come from the other side of the Atlantic, but that they are becoming New Englanders; not as rapidly nor as generally as some of us wish, but, as to the more desirable among them, surely and steadily.

Then there is the New England thrift. It is one of the great charms of the section. New England has no copyright on thrift. Other sections have it, in a degree greater or less than we have it. But it has happened that New England thrift has enabled us to be of greater consequence in the development of the other parts of the country than any other group has been. It was our fortune, due to primacy of origin and settlement. The conditions of life imposed upon the early New Englanders imposed also upon them the most rigorous thrift. To support life they had to save every penny, and they had to search diligently for the pennies to save. This hard condition bred thrift. At the first our fathers could not spend if they would. They did not have the money, and they could not get it; but if they had had money they could not have spent it, because there was no more opportunity for spending than for earning. Thrift was imposed upon the first New England gen-

BRINGING IN THE SAP, VERMONT

eration by conditions they could not escape, and it became the habit of succeeding generations. It is still a New England characteristic, though its rule has in the cities become modified. It has given the country a continuing stream of money, and that stream is still flowing. New England money has made many of the cities of the West, built many of the railroads everywhere, developed many of the mines, made farming possible in the early days of the Middle West, harvested the crops in the grain country until within very recent years, and moved the wheels of progress generally. And there is plenty of it now where it has been coming from for three generations — in the savings banks of New England, and in the strong boxes and leather wallets of the New England people. This may be esteemed a sordid element to account one of the charms of New England, but a little reflection will dispel that view. It is that which New England money has done, can do, and is doing, which makes of this habit of thrift one of the distinctive and distinguished charms of New England. It is not put out to usury. It is collected by the savings banks, the building and loan banks, the great industrial corporations, the national banks and the trust companies, and made to do its part in the development of the country. It has been, and it is, adventurous. It went into the western farm mortgages, and much of it was lost there; but it played its part in making farming there possible and profitable. It has never shrunk from taking heavy risks, in the missionary spirit that has ever been a New England characteristic. It has been, and it is, an amelioristic element in the country's finances.

One of the especial charms of New England is the New England sociological spirit. It is distinct from the sociological spirit of the country, and it is that difference that makes of it a New England charm. Sociology is, one may say, rampant in the world, and no section of the world is justified in claiming its devotion to sociological thought or work as a distinctive or exclusive charm. There is in New England however a variety of sociological development that is perhaps in its intensity not to be found elsewhere, and it offers to the thoughtfully inclined, and to the altruistic, an opportunity to indulge

their penchant such as is nowhere else available. It is the fashion in Boston, which is really the capital of New England as well as the capital of Massachusetts, to devote some share of one's time, money and enthusiasm to the service of Man, and to do it in a very practical and result-bringing way; and the example Boston sets is followed in the other cities and towns. To a large and increasing extent these manifestations of sociological bent which originate and focus in Boston are participated in by people in all the states, so closely have the trolleys, the telephone, the automobiles, and the improved service of the steam railroads, drawn us together. That new spirit in business which is accomplishing such great things for business, and which is lending business methods to sociology and philanthropy and religion and education, is having a great and significant development in New England. We stood by and watched the sentiment blossom and fruit elsewhere, not in a spirit of criticism but to note the methods and the results. Finally, when New England was ready, we took up the work, and began at once to show remarkable results. In Boston there is now going on what it is perfectly just to describe as the most remarkable movement in applied sociology that is anywhere at work. The visible mediums for this work are the Boston Chamber of Commerce, Boston-1915, the Pilgrim Publicity Association, the Boston Young Men's Christian Association, the Franklin Foundation, the school authorities, the labor associations, some of the boards and associations of the state, the Metropolitan Park, Water, and Sewage boards, the churches, and many other organizations and societies. The first and third named associations are essentially business organizations, but they are conducted on the theory that better business results if there are better men, and so their work has often a very strong sociological flavor, and their whole force is often focussed upon the accomplishment of purposes which have but a distant relation to business. There are in Boston many small informal associations of men working for some special end, such as getting a business course into the curriculum of Harvard University, or Yale, or focusing the energies of groups of more or less visionary societies upon some

practical reform or advance movement, or lending the aid of disinterested citizens to the work of school authorities, or turning the attention of churches and their related associations to civic investigation and work. New England is a veritable caldron of sociology, and its manifestations are so various that there is not the slightest chance that the predilections of any individual cannot be exactly satisfied. One of the more desirable and hopeful of the tendencies of this flood of goodwill formalized is that it is realizing that it is not altruism that is to be desired, but mutualism. So in New England the thing is not so much for brother to help brother as for brethren to work together for their mutual benefit.

Much has always been said and written about New England culture, and some of it has had at least a suspicion of a fleer in it. Both the statement and the fleer in it have been deserved. We are devoted to culture, and some of us mistake information for culture. If we know about things we wish it to be acknowledged that we are cultured. Some of us know better, and realize that culture is more than knowledge, and different. Culture is not a sectional quality. It is prone to follow in the wake of age. Where men have been for a long time, have overcome the obstacles of nature, and have found time to discover themselves, there is sure to be culture. It is not that New England is New England that culture abides here, but that New Englanders have had more time to ripen; and perhaps also that they brought a quantity of well-developed primal stock from the old land. But there is no quality of exclusiveness in New England culture. It is altruistic, and it seeks to distribute itself as democratically as possible. Here one has only to have the desire and willingness to accept the opportunity and almost every kind of knowledge that goes for the foundation of culture is freely at his disposal.

One of the charming things about New England is that it is, in some respects, the most finished section of the country. There is here the sense of the benign work of Time. Everywhere, even in the midst of the most flourishing and progressive cities and towns, there are examples of the work and evidences of the lives of the fathers — old houses, rows of stately

elm trees, old business buildings with their queer gable ends to the street; while ever and anon there are still to be encountered men who adhere to the dress and fashion of life current two or three generations ago. The Webster style of blue swallow-tail coat with brass buttons has but just disappeared from one of the New England legislatures. There are everywhere reminders of the glory that was. There are many households that are conducted almost as in the colonial times. Supper is yet the evening meal throughout rural New England, and in a goodly proportion of the city homes as well; and it is not only supper in name but the same foods are served in the same manner. What are called primitive customs survive. The curfew rings from many church steeples, though leniency is practiced with respect to the ordering of lights out at the same time. The district school exists everywhere in the more remote and smaller sections. The town academy has not wholly surrendered to the modern high school. A majority of the farms are still worked as great-grandfather worked his, though this is cited solely as a pictorial element of charm, not as an industrial fact to flaunt. The New England style of architecture gives way to more modern conceptions with stubborn slowness. Most of the country churches are redolent with suggestion of the storied past, and the echoes from the pulpits often serve to strengthen the illusion. The old-fashioned gentleman and lady are present at every church service and at every village function. We cling to the memories and the habits of the past, and by so doing we exasperate the more progressive among our younger people. But we who are charmed with these survivals, and believe that they are among the valuable assets of New England, believe that we recognize a more tolerant spirit with reference to them.

That charm which appeals with the greatest force to many people is that more or less intangible relict from the past which preserves for the New Englanders of today the essence of the past, manifested no less in the settled air of having already lived than in the substantial evidence of real estate and bank balances. New England is full of the charm and lure of the past, the old New England. There is everywhere the

feeling that we of the present are indeed heirs of the past, and that our ancestors were careful to consider our needs and our wishes. The old houses in many of the larger towns and cities attest their builders' regard for their posterity. The stately avenues of trees everywhere are eloquent of the care which our fathers and our grandfathers had for the generations that were to succeed them. They built, in many ways, for the pleasure and the profit of the generation of which we are. They built for the permanent charm of New England, whether consciously or not is answered by the elms of the Connecticut valley, which need two generations for their adolescence, by the wonderful houses of old Salem and Hallowell and Hartford and other cities, which are even more attractive now than when they were built; and by the thousand and one other evidences of planning and building for futurity which are met with on every hand. Time has given New England that restful air of being finished which is so grateful to the senses. The raw, the unfinished, the temporary, the experimental, the transitory, are notably absent from our lands and waters. A goodly proportion of New England farmhouses have melted into the general prospect so amiably as to seem to have been designed to complement the scene, and many of our towns and cities have become merged in the landscape as though they too were included in the scheme by the great landscape architect who fashioned the country.

The charm of New England lies in the fact that New England continues to be New England. Sentiment, romance, the halo of youthful memories, the sacred aspirations of patriotism, the roots of innumerable families, the tremulous first breath of universal political freedom, the motherings of a new continent, the adolescence of America, the nourishing of the nation, all of these sentiments and memories come and clamor when New England gets into the minds and hearts of the people of America, and it is then that we know that New England is a section of the land that is not to be permitted to live for and unto itself, but that it belongs to all the land and all the people of the land, and will always live in the hearts of all the people.

Manufacturing in New England

An ungenerous soil for the greater part, scant mineral wealth embedded in great rock formations, noble but not continental rivers falling from mountain lakes and streams across its territory to the sea, a long rocky coast indented with numerous harbors,—these were the natural resources of New England which the pioneers found when they came. At the outset their labors were of necessity devoted mainly to the cultivation of the soil to supply the means of subsistence. Their first industry was home building. Their first artisans were the carpenter and the blacksmith. Their first mills were the grist and the saw mill. The rivers were their first highways. The "pinnace" and the ship constituted their first system of transportation. Simultaneously with the clearing and planting of the land, the sea was cultivated, and the fisheries and the carrying trade became the first gainful occupations. Their first products, other than fish, were drawn from the forests that environed their settlements and bordered the rivers and streams. Less than three years from the planting of the Pilgrims the ship *Anne* sailed out from Plymouth on her return to England laden with two hogsheads of beaver and otter skins, and "good clapbord as full as she could stowe." The Puritans of the Bay colony, as soon as established, were taking up the same industry. Very early they were sending their products from the forests — clapboards, pipestaves, hoops, rough hewn lumber, — not alone to England, but to the West Indies, where they found a welcome market in exchange for the commodities of the islands. In the infant settlements on the coast of New Hampshire and Maine all were busiest in the conversion of their almost inexhaustible wealth of timber into merchantable forms.

Close upon the carpenter and the blacksmith came the shipwright and shipbuilding, for the fishing and carrying trades became a paramount industry. So too, as an auxiliary

to the fisheries, the manufacture of salt was begun. A shipwright and a saltmaker were among the accessions of the Plymouth colony in 1624. The shipwright, as Bradford records, "quickly builds two very good and strong shallops, with a great and strong lighter," and gets out "hewn timber for ketches," while the saltmaker attempts the manufacture of salt for their fisheries, first at Cape Ann and afterward on Cape Cod. But in the summer's heat the shipwright "falls into a fever" and "dyes," to their great loss and sorrow, and the saltmaker fails in his efforts, for he is "an ignorante, foolish, self-willed fellow." Pretty soon the Pilgrims had better luck, and by 1627 had turned out a neat pinnace and were getting salt in fair plenty.

By 1634, only four years after the beginning of Boston, the New Englanders were sending out their commodities of cured fish, lumber and furs, and bringing back articles of convenience and even of luxury. Their well-laden ships were voyaging to England, the West Indies, the Canaries. In 1636 one of Cradock's ships arrived from Bermuda with "thirty thousand weight of potatoes and store of oranges and limes." The Boston ship *Tryal* took out fish to Bilboa, and in the spring of 1644 returned home from Malaga laden with "wine, fruit, oil, iron and wool." This, the chronicler notes with satisfaction, was "of great advantage to the country and gave encouragement to trade." A year or two earlier the writer of "New England's First Fruits," remarked: "Besides many boats, shallops, hoyes, lighters, pinnaces, we are in a way of building shippes of a 100, 200, 300, 400 tunne, five of them are already at sea; many more in hand at this present." This he devoutly held to be one of several "remarkable passages" of God's "providence to our plantation." And Hubbard, in his "History of New England," wrote of the period between 1646–1651: "The people of New England at this time began to flourish much in building ships and trafficking abroad." They were moreover building ships to be sold abroad. By 1645 New England-built fishing vessels were venturing so far as the Banks of Newfoundland. By 1650, as Captain Edward Johnson noted in his buoyant "Wonder-Working Providence of Sion's Saviour in New Eng-

land": "Many a fair ship had her framing and finishing here, besides lesser vessels, barques and ketches, many a Master, besides common Seamen, had their first learning in this Colony [Massachusetts]. Boston, Charles-Town, Salem and Ipswitch our Maritan [maritime] Towns, began to encrease roundly, especially Boston, the which of a poor country village in twice [thrice] seven years is become unto a small city." From these slender though substantial colonial beginnings were developed the great shipbuilding interests which gave New England wide fame before and after the Revolution, and in which she led through two centuries.

Along with the development of the lumber trade, the fishing industry and shipbuilding came domestic manufacture for home consumption. When in 1641 immigration had fallen off and, as Winthrop wrote, "all foreign commodities grew scarce," and their own "of no price; corn would buy no thing, a cow which cost last year 20 pounds, might now be bought for 4 or 5 pounds," these straits set the people on sowing hemp and flax, as well as on fishing and lumber cutting, and "to look out to the West Indies for a trade for cotton." In his "Plain Dealing: or Newes from New England," wrote the observant lawyer, Thomas Lechford, who had been in the colonies in 1637–1641: "They are setting on the manufacture of linnen and cotton cloath." And the pious recorder of "New England's First Fruits" found a further "remarkable passage" in the prospering of "hempe and flaxe" here "so well that its frequently sowen, spun, and woven into linnen-cloth; and in a short time may serve for cordage." "So," he added, "with cotton-wooll (which we may have at very reasonable rates from the islands) and our linnen yarne, we can make dimittees and fustians for our summer clothing. And having a matter of 1000 sheep, which prosper well to begin withall, in a competent time we may hope to have woollen cloath there made. And great and small cattel, being now very frequently killed for food: their skins will afford us leather for boots and shoes, and other uses. So that God is leading us by the hand into a way of clothing."

The spinning wheel was now an important adjunct of the

home, and the housewife and her buxom daughters were becoming adepts in their first domestic manufactures. The shoemaker and the tanner had arrived, and were plying their trades in Plymouth and in Boston. Thomas Beard, in Plymouth, who came over in 1628 bringing out with him a supply of English hides and of leather, and William Copp, in Boston, whose dwelling and shop at the foot of the northernmost of Boston's three hills gave it the name of Copp's, were the forerunners of the great shoemakers of New England who brought this industry to the foremost place and to a high state of perfection. Francis Ingalls, a first settler of Lynn, who set up the first tannery in the colonies in what is now Swampscott, and George Keyser, a close follower with his tannery in Lynn, were the beginners or founders of the great hide and leather trade in which New England early led and still leads the country. By 1641 ropemaking had begun, and the shipbuilders were no longer dependent upon the home country as before for nearly every kind of ship rigging and tackle.

Close upon the home building and the cultivation of the soil and the sea, mills were set up; and early the rivers and streams nearest the coast were harnessed. The first saw-mills were water-mills. The first corn-mills were wind-mills, but waterpower was very soon substituted for wind. The pioneer New England mill appears to have been a wind-propelled corn-mill in Massachusetts; the first water-mill was a saw-mill in New Hampshire. The corn-mill, tradition says, was first set up in or near Watertown, on the Charles river; but "because it would not grind but with a westerly wind," it was taken down in 1632 and removed to Boston, where it was reërected at the North End on the hill that became Copp's hill. The saw-mill was on Salmon Falls river, near Portsmouth, and was running, as some local historians say, as early as 1631, although the first mention of it as apparently in operation is in 1634 or 1635. The first water-propelled grist-mill was Colonel Israel Stoughton's mill erected, "by leave of the plantation," on the Neponset river, at Milton, where the oldest of the chocolate-mills now stands, and it

ground "the first bushel of grain ever ground by water in New England," in the autumn of 1634. Antedating all of these was a Pilgrim water-mill set up beside "Billington Sea" in Plymouth; but that was simply a pounding mill by which corn was cleaned from the hull and prepared for samp, or nausamp and succotash, the use of which the colonists learned from the Indians. It may have been the first mill to take the place of the primitive mortars borrowed from the Indians which the Pilgrims first used to crush their corn. In 1636 and 1637 more water grist-mills sprung up in the Bay colony — in Salem, Ipswich, Newbury; and about the same time water saw-mills began to multiply along the streams of Maine and New Hampshire. Rhode Island was slower than its sister colonies in utilizing waterpower, dependence being on wind-mills for a considerable period. But it was early engaged in the lumber industry, making first exports of lumber, pipestaves, and so forth, in 1639–1640. In Connecticut the first saw-mill was at New London, set up previous to 1654, an enterprise of the younger John Winthrop. Early iron works were established, and this younger John Winthrop was their chief promoter. It was he who discovered iron ore in New England. The first furnace in America, set up in Lynn in 1644, where bog iron in considerable quantities was found, was quickly followed by the second, in Braintree; both owned by the same company, which was instituted by Winthrop, who was also subsequently concerned in an iron works in New Haven. Thus Lynn has the distinction of having first introduced the manufacture of iron as well as of leather into the colonies, and the merit of having developed these industries to substantial proportions. These pioneer iron works continued in operation, with variable success, for a considerable period, the Lynn works for more than a century, and from them graduated workers who were the progenitors of great American iron masters. Among these graduates was Henry Leonard, one of the earliest employed in the Lynn works who assisted in making the first castings in America. He, with his brother James, establishing a forge in the town of Raynham in 1652, was the first of a long line of

iron masters of that name in different parts of the country. The brothers Leonard appear to have added to the manufacture the operations of the bloomery and the forge hammer. A year or two after the setting up of their forge, a Dutch writer in the New Netherlands remarked of the New Englanders, that they were then "casting their own cannon, plates, pots and cannon balls from native iron." In 1691 iron ore, called rockmine, was obtained from the ledges of Nahant for the forge at Braintree. At about the same time iron ore, much better than bog iron, was found in the bottoms of ponds, and profitably used. It was pulled up from the beds with tongs, lifted into boats, taken ashore and carted to the furnaces. The first rolling and slitting mill was erected in Middleboro, Mass. Here were produced nail-rods out of which hammered nails were made. At a foundry in neighboring Bridgewater, later established, tradition says were made the first cannon in the country, cast solid and taken elsewhere to be bored. At this foundry cannon balls and cannon were turned out during the French and Indian wars, and the Revolution; and Weston tells how the owners of this foundry undertook to cast four cannon six or seven feet long to be used in the Revolution, and how when tested they exploded and the owners lost all their property in the venture. As early as 1639 glass manufacture had begun, with the making of bottles and other coarse wares. Window-glass making was undertaken at a later date. Before that window glass was an imported luxury and only the opulent, or the fairly well-to-do, had it in their windows. From these crude beginnings glass manufacture became in time an important New England industry, and so continued till into the second half of the nineteenth century.

During the closing eighteenth century Rhode Island's domestic manufacturing was underway, receiving a great impetus through the ingenuity and enterprise of Samuel Slater; and Connecticut was beginning the development of her marvelous variety of industries in the product of small-wares, which came to their rich bloom with the advancing nineteenth century, and hold to this day. Connecticut-made

WOOD WORSTED MILL, LAWRENCE, MASS.

One of the thirty-six mills of the American Woolen company of Boston, all but one of which are located in New England. The American Woolen company is the largest of wool manufacturing corporations. It has a total output of about $50,000,000 a year.

goods early after the Revolution became important American staples, and Connecticut "Yankee notions" won fame the world over. Before the middle of the eighteenth century New England was making beaver hats for the world, and the feltmakers in London were appealing to the government to protect them against this competition of the colonists by prohibiting the importation of American-made hats, which was done.

To properly treat of the manufacturing in New England would require several volumes the size of this. Nothing but a rapid and impressionistic sketch can be attempted — indicative of what there is now in New England in the way of great and special manufacturing interests, and of what there is ground to hope there will be in the near future.

That there is to be improvement, substantial and natural growth, for the industries of New England requires faith to believe and proof to demonstrate. In other sections of the country the fact of future growth is accepted as a part of the creed of good citizenship. No man of the West has to be converted to the postulate that his state or city is bound for a golden future. No man has to be convinced that it is his duty to cherish an unclouded faith in the booming future of that region, and to promote that future with all his strength and all his soul — and often with all his money. And the men of the West and the Northwest, and the Southwest, and the South, do that. They believe in their sections, and they are willing to back that belief with personal service and with cash. They do even better than to pool their cash for the betterment of their cities and states — they get the cash from people in other sections of the country; from New England and the East generally. It is the fault of New England investors, not that they have invested more in the West, but that they have invested less in New England. This is an economic fault, not a defect in patriotism or love of the home section. The economic fault is that while the money from New England has gone to the West and the newer sections, to build factories there, it might have been invested for the same purpose here at home, and earned larger dividends. If this is not strictly true of all

the time since New England began to send money to develop the West, as I suspect it is not, it is very true now, and has for some years been true. There may have been, with respect to the past, a broader philosophy than we are now inclined to consider that controlled the diffusion of the money of New England. It is conceivable that the industries of New England had better chance to grow without the stimulus of new money put into them, and that the manufacturing growth of the West needed the nurture of more ready money to enable it to get a foothold in the alien and unfriendly and untilled soil. But now the necessity for that fertilization has passed, with the firm establishment of manufacturing in the West and the other sections of the country which were first farming or mining regions, and New England capital is free to consider the opportunities offered in its home fields. Such appears to be the case. It is now observed that capital is more kindly inclined toward great manufacturing opportunities in New England; and it is significant that the more notable evidences of this consist in enterprises that have for their objects the opening of the field for the general benefit of all kinds of manufacturing, as well as in the establishment of specific industries. The development of the unused waterpowers of New England is attracting a great amount of capital, which has to have a large amount of faith to insure even the hope of dividends away off in the future. The money that is going into transportation enterprises, government and state money as well as private funds, shows that there is an abiding faith in the future of New England manufacturing; which is, after all, the very best warrant that there is a bright future for it.

There was a time when New England was the workshop of the nation. Then everything was made in this territory, because there was not another section prepared to undertake the work. During this period we were prone to indulge the belief that New England was divinely ordained to make all the goods the country needed, of whatever kind or nature. We clung to this belief, and to the factories which were responsible for it, far too long. We have different ideas now, which have been banged into us by the people who discovered that there is a

certain fitness of locality for the manufacture of certain goods. We have discovered — or it has been discovered to us — that machinery consisting more of iron than workmanship should be made nearer to the supply of iron and coal than we are located; and that machinery and utensils wholly used outside of New England must be made nearer to their base of sale and use. These truths we have learned, but it took us a long time and the knowledge came hard and high. On the other hand, the newer sections of the country, when they began to make their own special necessities, were carried off their feet somewhat, and began to experiment in lines that had been developed here and that were anchored to our section with bonds formed of skilled help and trade advantages. These attempts were failures, many of them, and have been abandoned. Both of these causes of deterioration in some of our lines of manufacture have done their work, and now we see the balance struggling toward equipoise. New England has learned what it can do profitably, and what the other sections of the country cannot profitably do, in the way of manufacturing.

Recently developed industrial conditions have helped to widen the industrial horizon of New England. The growth and enrichment of the newer sections of the country have immensely augmented the demand for our staples, and tremendously stimulated our facility to conceive and inaugurate new industries. We have begun to understand that the great manufacturing asset of New England is brains — the brains of the men who have the money and the courage to install new industries, and particularly the brains of the skilled artisans who have been bred to expertness through several generations. This brain asset will operate to maintain our manufacturing prestige as long as it is itself maintained. This suggests one of the more important and interesting questions connected with industrial development everywhere — the training of specialized workmen through successive generations. This development is not in harmony with the strict republicanism of America, and yet it is becoming one of our industrial assets. The specializing of industrial knowledge and skill, by handing craftsmanship down from one generation to another, and another, is one

of the chief elements of strength in German and English industrial life, as well as, in some sense, one of the elements of social weakness in those countries. In America its influence is at present amalgamated with social and socialistic interests in such fashion as to obscure judgment of it as an industrial asset. Its visible and obvious manifestation, just now, gives New England a decided advantage in such manufacturing as involves man-skill in mechanics as one of its essential elements. This basic element has built up some of the most important and significant establishments in the world, here in New England, and it operates to make it forever impossible that they shall desert New England. It has also operated to build up great specialties in the West. Take shoes: There are now several great factories in some of the middle western cities made possible by drafting New England managers and operators. The great automobile factories in Michigan, Ohio, and Indiana, drew many of their managers and skilled iron workers from New England—to such an extent, indeed, that New England felt the embarrassment of a shortage in those lines and has taken to educating the immigrants in the use of automatic machinery and in many of the processes going to the making of tools, firearms, etc. Engine building was once almost exclusively a New England industry, but has gone nearer to the iron and coal supply, and taken the skilled mechanics along with it. Heavy machinery, such as engine lathes, is made in the Middle West to a greater extent than in New England.

But New England is honeycombed with establishments making tools of precision, mechanics tools, machine tools, and machinery that is either consumed in this or near territory or that requires more skill than pig iron in its construction. This sort of manufacturing is growing. The manufacture of textiles that require skilled labor is still New England's specialty, and is growing at such a phenomenal rate as to justify the supposition that it is destined to remain here indefinitely. Whenever it is noted that there has been a new cotton mill projected in the South (usually financed from New England) it is easy to turn to records of expansion in New England that dwarf the new mill almost to insignificance. We are told that the South

is making great progress in manufacturing, and such is the fact. We all rejoice in it, and would not make comparisons that seem invidious. Yet to show how far New England is in the advance it is only necessary to state that there was in 1905 in the six New England states $1,870,895,405 engaged in manufacturing, as capital; while in the six southern states that are competing in the making of cotton goods there was $657,416,455 capital engaged in manufacturing. There is as much capital invested in the textile mills of New England as there is invested in all kinds of manufacturing in these six southern states.

On the other hand, there is almost exactly as much manufacturing capital in New York as in all New England, nearly as much in Pennsylvania, nearly half as much in Illinois, nearly half as much in Ohio, more than a third as much in the little state of New Jersey. More than half of the manufacturing capital in New England is in Massachusetts, and about one-third in Connecticut and Rhode Island. New Hampshire, Maine, and Vermont have together but about one-sixth of the manufacturing capital of New England. These three northern New England states have been essentially grazing and farming states. Vermont remains such. New Hampshire has big mills on the Merrimac river, is developing an enterprising policy with respect to waterpower, is showing definite gains in number of establishments and capital employed, and is getting industries that esteem freedom from trade-union conditions and a policy of settling help in homes and drawing from the farming population. Maine has great paper mills, and a considerable textile industry. It has also a lumber and wood manufacturing industry of considerable, but scarcely growing, extent. The waterpower in Maine is destined to make of it one of the greatest manufacturing states in the Union.

The manufacturing story of these three northern states, reserving a section of the southern portion of New Hampshire, is soon told, and is not very distinctive or inspiring. In Vermont there are great quantities of marble and granite quarried, but only a small proportion of it subjected to such working as would justify reckoning the capital employed as

being manufacturing capital; and there are large scale-making plants in two towns. In New Hampshire, aside from the immense textile and shoe factories at Manchester, there are some notable industries, and there is evidence in many cities and towns of systematic endeavor to increase manufacturing in them. During the past few years there has been a rather notable drift of shoe manufacturers to New Hampshire towns. Perhaps the most consequential of these came from Chicago, and is therefore an addition to the shoe industry of New England which in some measure compensates for the factories that have been established at St. Louis and Chicago, with New England brains.

In machinery New England has surrendered the lead, so far as bulk and value of output is concerned, to the middle western states, for the very good reason, as stated, that large machinery and cars must be made near to the sources of iron and coal. But in all the lines of the manipulation of iron and steel in which skilled labor counts for more than raw material New England is yet either in the lead or well up in front. Worcester is, for example, the recognized center of the manufacture of metal-working machines and tools. At Athol, Mass., there is the great Starrett factory, an establishment unique in the world, making about 1200 varieties of mechanics fine tools, the great majority of which were invented or devised by the proprietor of the works, and much of the machinery used in the factories is also of his design and conception. This man has discovered a great need in American craftsmanship, and has supplied that need. His products are sold in every city in the world, and are the synonym for accuracy. They have lifted New England workmanship to a higher plane, and they have put exact workmanship the world over on a higher plane. There are many such establishments in New England, where tools for the workers of the world are devised and made. The Morse Twist Drill works at New Bedford is another illustration. Twist drills were originated there, and from that shop have sprung all the other concerns in the country now engaged in the business of making twist drills. The making of boots and shoes by machinery, and the machines to make

them, originated in New England, and the greatest of the factories in existence twenty years ago started in the kitchen of the owner's father. The development of the textile industry, and of the machinery to make all kinds of fabrics, was in New England, and we now hold unchallenged the lead in these lines. These four great staple lines — machinery and tools, boots, shoes and leather, paper, and textiles, dominate New England industries now, sharing their supremacy only with agriculture and waterpower, both in their infantile stage of development. We make over one-half the textiles, textile machinery, boots and shoes, fine paper, wire goods, cutlery, firearms, ammunition, rolled brass, rubber goods, clocks, plated-ware, rolled copper, silverware, and a long list of other goods; and we lead in so many things that the list of them would read like a business directory.

The vital thing for New England, just now that it has decided to take full advantage of its destiny, is what it is to be rather than what it is, or what it has been. Circumstances unrelated to personal or sectional enterprise have had much to do with establishing many of the great industries of New England. There was, at the time they came into being, no other place for them to take root. They located here because this was the only section available for any kind of manufacturing, because here were the only possible operatives, because here were the only known and available waterpowers, and because here were the only markets. They have stayed here partly because they were here, and partly because New England enterprise has kept them here. It is only a few years since there was no capital outside of New England, and it is only within two generations that New England capital has become vagrant and gone to other sections to establish manufacturing. It went along with the pioneers who opened up the farms of the West, and it was with the prospectors who discovered and developed the great mines of the Northwest and California. While it was thus engaged, some of it was sedulously building up the factories of New England. In the wake of capital went the skilled workmen and the managerial talent. This was the second hegira from New England westward,

THE ARLINGTON MILLS, LAWRENCE, MASS.

and it sapped New England as the first flight across the continent of the land-hungry Pilgrims sapped it, though not as severely. All through the big factories of the West there is the New England trail. In many instances the whole industry will be found to be New England's, from the capital to the operative, including the patents and designs at the bottom of the enterprise.

Hopes of greater manufacturing development in New England rest upon several quite recently discovered or developed conditions. Chief among these is the new realization of the potential resources of New England. This supplies the personal factor which is to create the enthusiasm and the constructive promotive energy. There would never such a sentiment develop in New England if there were not a very solid basis, a perfectly good reason, for it. There must be dividends in sight in order that New England enterprise shall deal with home problems. Promises of dividends are accepted from the West, but not from New England. The guaranty of dividends to New England money and enterprise expended in New England has been furnished by New England land and by New England trade prospects. Enterprise has had its eyes dazzled by the Pacific ocean, and its imagination daunted by the necessity of leaping that vast ocean or turning back to whence it originated in New England. It has divided its forces: One portion is lingering on the Pacific slope dallying with the fascinating work of making the land there yield dividends, one portion has shut its eyes and vaulted into China, Japan, Corea, the Philippines, and the Hawaiian islands; and yet another portion, the smaller, has turned its eyes to the old home here in New England. This homing moiety is being joined by some home-keeping money and enterprise, and the promotion of New England is under way. Much of this promotive spirit is going to the work of developing the New England land, but a fair share of it is engaging in manufacturing and in collateral enterprises, such as the utilization of waterpowers. This latter is assuming great proportions, though it has not yet come out into the open in great volume. There is a great amount of money being put into projects for the harnessing of water-

powers in New England, and there are vastly greater amounts being prepared for by the securing of power sites along the rivers. These enterprises are not solely for the benefit of manufacturing, but primarily for the furnishing of power for street railways and electric light plants. They all contemplate the selling of electricity for power for manufacturing, as their secondary purpose, and expect that factories will group themselves within economical reach of their feed wires. This is happening wherever these power schemes have developed to the point of selling electricity. It is interesting to note, in connection with the multiplication of waterpower-made electricity, that the builders of steam engines have bestirred themselves, and are now able to compete with this electric power, if steaming coal can be supplied at reasonably low rates; all of which is for the advantage of the manufacturers of New England, who have sorely needed cheaper power. The vital consequence of this move to utilize waterpower can only be conceived when the tremendous potential energy of the unused waterpowers in New England is taken into account. It has not yet been estimated with any degree of accuracy, but there is enough of it available to cut the power cost of all the mills in New England to the lowest electrical figure, and allow for their expansion to ten times their present capacity, or a hundred times. The potential power of the water that runs to waste in New England would be expressed in figures that would stagger the imagination, if it could be expressed at all.

It is not the fact that there is unlimited potential waterpower available in New England that furnishes the chief reason for expecting a great increase of manufacturing in New England. There is no one principal reason that can be stated. It is happening. That is the best reason of all. Market conditions have changed. It is now profitable to make many things in New England that have heretofore been unprofitable. We are getting to consider things in terms of costs, instead of in terms of despondency and fear. We do not now quail when we are told that goods must be produced near the raw material and their greatest markets. We ask ourselves if that is the whole problem. And we discover that it is not! We discover

that there is the problem of skilled labor, and that that is in many instances the greatest of all the problems; and we discover that the problem of transportation is after all but one of the minor manufacturing problems. When a Chicago house finds it economical to establish great shoe factories in New Hampshire, ship all of its leather from the West and ship all of its shoes to Chicago, we are inclined to disregard the transportation argument; so far, as least, as shoes are concerned. Nor are we very completely possessed by the argument that raw material for iron manufactured articles must be near at hand when we learn of the successful return to smelting in certain industries, and that a New England concern can receive steel ingots from England in less time than they can be received from Pittsburg, and often at less cost.

There is, and always has been, a large amount of unsupported assertion in the arguments against certain lines of manufacture for New England, and we have listened to them too credulously. This credulity has disappeared, and with it has gone much of the difficulty of New England manufacturing. We have found out that we can make freight cars in Massachusetts to compete with Pittsburg or St. Louis, and we have gone about making them. We have found that the West cannot make shoes to compete with us, if we adopt the selling schemes of the hustling westerners, and we are doing it. We are beginning to believe that we may as well again begin to make our furniture, which we quit doing when the West began to make a systematic business of what we had been doing in a haphazard manner. We are even beginning to find out that we can make many articles that use more iron than brains, despite the shibboleth of the necessary propinquity of iron ore and coal. We can pay the freight on cotton from Egypt or India, and wool from Australia, make it into fabrics and ship it back to those very countries, at a profit. We are discovering in all lines of manufacturing that all of the physical problems are adaptable, may be shaped to our conditions, but that the element of brains and skill is that which demands our attention and must be allowed to shape our manufacturing policy.

The great increase in the demands of our own markets is a

stimulus that has operated to enlarge our manufactured output, and will continue thus to operate. We have been buying too many goods that we might as well make, and we are seeing it. It is a little ridiculous for the workshop of the nation to buy manufactured goods away from home, as we are now realizing how ridiculous it is for us to buy garden truck grown in the South, when we can raise it much cheaper and market it in much better condition. We are getting our eyes open, and that is the chief reason for our expectation that we are to have a great revival in manufacturing — that and the fact that that revival has already begun.

The textile industries are almost the greatest in the entire United States, standing in the rank of manufactures next after iron and steel. The textile industries are far and away the greatest and the most important in New England. Wool, cotton, silk — the preparation of the raw materials, the spinning of the yarns, the weaving of the cloth, the dyeing and finishing of the fabrics — these occupations absorb more capital and employ more labor in New England than any other calling, and the prosperity of these vast and complex interests is most vital to the prosperity of every form of New England trade and commerce. Broadly speaking, one-half of the entire textile activities of the United States, exclusive of flax, hemp and jute, are conducted in the region lying east of the Hudson river and north of Long island and Vineyard sound. This preëminence of New England is not only historic but it is unshaken, almost unchallenged. The past thirty years have witnessed a wonderful development of cotton manufacturing in the southern states, and of wool manufacturing in New York, New Jersey, Pennsylvania and Ohio. Yet New England has not only maintained its ancient leadership but in some points has actually strengthened it. Out of the huge sum of more than a billion dollars — to be exact, $1,288,901,074 — invested as capital in textile manufacturing in the United States, no less than $624,096,904 is contained in New England mills and factories. Out of a total annual disbursement of $240,776,492 in wages to textile operatives no less than $116,847,135 is

paid to New England people and deposited in the savings banks or disbursed for purchases in the shops and stores or for other expenditures in the six New England states. Out of a total annual value of product for the textile industries of $1,152,097,433 New England's contribution is $522,821,440.

New England comes rightfully enough by her preëminence in textile manufacturing, for the very first American efforts to produce in this country the clothing of the people of this country were made here, nearly three centuries ago. There were skilled English "clothiers" among the earliest colonists, and these men were naturally ambitious to practice their craft in the new land. The first fulling mill in New England was built in Rowley, Mass., by artisans who came over in 1638, only eight years after the founding of Boston. Cotton, wool and linen were spun and woven in the households of these New England pioneers. As Governor Winthrop wrote in his Journal of June, 1643: "Our supplies from England failing very much, men began to look about them, and fell to the manufacture of cotton, whereof we had a store from Barbadoes, and of hemp and flax, wherein Rowley, to their great commendation, exceeded all other towns." In 1645 the General Court of Massachusetts, moved by the urgent need of good, warm clothes in this inhospitable climate, passed an order to encourage the establishment of flocks of sheep. As early as 1640 the Massachusetts lawmakers had offered a bounty of three pence on every shilling's worth of linen, woolen and cotton cloth, as a stimulus to native manufacturing. Later, it was ordained that all persons not otherwise employed — meaning particularly women, boys and girls — should spin for thirty weeks every year at least three pounds a week of linen, cotton or wool. The General Assembly of Rhode Island, in 1751, granted a bounty of one-third of the appraised value on cloths manufactured in the colony from wool or flax, but at the next session the act was repealed on the ground that "it may draw the displeasure of Great Britain upon us, as it will interfere with their most favorite manufactory."

Textile manufacturing as we now know it, in separate establishments as a regular business undertaking, had gained

no real, distinct foothold in America up to the Revolutionary war, but the primitive form of household manufacture was practiced throughout the country. Homespun woolen, cotton and linen fabrics were the every day apparel of the people. All other cloths were imported principally from England. No such thing as a textile factory was known, in 1783, in the United States. The textile industry as we now understand it is entirely the outgrowth of the national period of American history. Just as every effort of the colonists to make themselves self-sustaining was vigorously discouraged by the British government, so after political independence was established, every possible obstacle was placed in the path of industrial enterprise in the new republic. Arkwright had introduced his labor-saving textile machinery in Great Britain in 1769, and a factory system was being steadily developed. This system however was rigidly kept a British monopoly. Skilled artisans were forbidden to take out of the country to the New World any machinery, or even models or drawings, and the baggage of all departing travelers was searched for such contraband material. In 1790 however there came over from Old England to New England a man named Samuel Slater, who brought these models in the form of ideas in his head. He had worked long in an English factory, and was familiar with machinery and methods, and he reproduced these machines in the United States. From his achievement dates the successful factory production of cotton fabrics in the United States, and the plants established in Rhode Island by Samuel Slater have been in operation ever since.

The first of American wool factories was that of the Hartford Manufacturing company in Connecticut, which was started in 1788 through subscriptions raised in the Connecticut towns. It found its products undersold by English goods which could easily pay the duty of five percent. In eight years the company went out of business. Other woolen mills were started at about the same time in Stockbridge and in Watertown, Mass., and in 1794 there was established at Byfield, Mass., the first woolen factory operated by power. The Federal Census of 1800 mentions only three woolen factories and

credits them with a capacity of about 15,000 yards a year, and a valuation of about $75,000. By 1820 the value of woolen fabrics produced in the United States had risen to $4,413,068, and of cotton fabrics to $4,800,000. Each Federal Census since 1820 has marked an increase, until the latest full official figures available — those for 1905 — show that the product of American woolen mills has reached the impressive value of $380,934,003, and of cotton mills, $442,451,218.

Four hundred and eighty-three million pounds of wool were consumed in the American wool manufacture in 1905, and of this huge amount New England utilized 263,000,000 pounds. Out of the total value of wool manufactures amounting, as stated, to $380,934,003, New England's share was no less than $218,108,733. American woolen factories gave employment in all to 179,967 operatives, more than one-half of whom, or 98,263, were employed in the New England states. Out of a total capital of $370,861,691 invested in the wool manufacture in America, no less than $215,695,277 was represented in the woolen mills of New England. Massachusetts is preëminently the leader in both wool and cotton manufacture of all the states of the nation.

Of a total of $442,451,218 given by the Federal Census for the products of all of the cotton mills of the country, our New England mills were responsible for more than one-half, or $224,072,562. Out of a total number of operatives of 310,458 in the cotton mills of the country, no fewer than 155,981 are in the New England factories — a larger percentage of the total than was so employed in 1880. The total capital invested in the cotton manufacture was set by the Federal Census at $605,100,164, of which $304,259,792, or more than one-half, was attributed to New England. Massachusetts alone is credited with an investment of more than $173,000,000. Of the total number of cotton spindles reported in 1905 of 23,000,000, the New England states had 14,000,000, and of these Massachusetts had more than 8,000,000. The Bay State has a larger number of cotton spindles than the entire South, though the increase has been prodigious in South Carolina, North Carolina and Georgia.

FACTORY OF THE GORHAM COMPANY, PROVIDENCE, R. I.

But these impressive statistics fail to convey an adequate idea of the preëminence of New England in the great branches of textile manufacturing. Here the industry was first developed, and here it has attained its most thoroughly modern organization. The Amoskeag Manufacturing company, with its mills in New Hampshire and its offices in Boston, is the largest cotton manufacturing concern in the world. The American Woolen company, with its offices in Boston and all but one of its thirty-six mills in New England, is the largest wool manufacturing concern in the world. Besides these two giants there are many other large, strong concerns equipped with the most complete machinery and managed with a fine blending of New England sagacity and enterprise. Manchester, Lowell, Lawrence, Fall River, New Bedford, Providence — these are textile centers of world-wide reputation.

A great deal of silk is used in the fine cotton-spinning mills of New England, and this section of the country contains a distinctive silk manufacturing industry worthy of separate recognition as a textile art. There was little else than household manufacture of silk in the United States until 1810, aside from the production of silk laces at Ipswich, Mass., and the making of fringes, coach laces and tassels at Philadelphia. The first silk mill on this continent was a New England enterprise established at Mansfield, Conn., in 1810, for the manufacture of sewing silk by waterpower. In 1834 silk dress trimmings were being made in Boston, and a sewing-silk factory had been started in Florence, Mass. A sewing-silk factory was in operation in Dedham in 1835, and in 1838 there were laid at South Manchester, Conn., the foundations of the great silk business of the Cheney Brothers. That Connecticut enterprise antedated by two years the starting of the general silk manufacture at Paterson, N. J. In 1848 the manufacture of sewing silk was established at Holyoke, Mass., and in 1866 at Willimantic, Conn. According to the Federal Census of 1905, the total value of silk manufactures produced in the United States was $133,288,072. There are 69 silk manufacturing establishments in New England, with a capital of more than $24,000,000, employing about 12,000 wage-

earners. New England leads all other sections of the country in the output of sewing silk and machine twist.

To sum up — the textile interests of the United States in 1905 represented a total capital invested of $1,343,324,605. The average number of employees was 739,239, and the wages paid amounted to $249,357,277. The total value of the products of the textile industries was $1,215,036,792. Of the total capital invested in the textile industry about one-half, or $629,696,994, is invested in New England, nearly one-half, or 305,474, of the wage-earners are employed here, and $116,847,135, or almost one-half of the wages paid, come to the working people of New England.

Second in rank as a New England industry, and holding first place in Massachusetts, is the manufacturing of leather and the innumerable other products that are fashioned from this indispensable product. New England makes more than half the shoes that are produced in the United States, and Boston is the leading shoe and leather center not only of America but of the world. It is a Massachusetts industry whose history goes back nearly three centuries. In Boston may be found the offices, factories or headquarters of more than one thousand concerns engaged in the manufacture or sale of leather, hides, footwear, shoe goods, machinery, and the accessories of this great American business, whose total product is nearly $1,000,000,000 annually. Twice a year hundreds of buyers of boots and shoes and leather come to Boston from nearly every state of the Union, to examine styles and purchase their stocks for the ensuing season. There are streets in the shoe and leather district of Boston that are wholly devoted to this industry, and hotels whose patronage at certain seasons is almost entirely of shoe buyers and dealers. Millions of dollars worth of products of tannery, shoe factory, last works and machine shops change hands here every year, and are shipped to all parts of America and to every civilized country. Millions of capital are represented by the concerns in the shoe and leather district of Boston. Their leading men are on the directorates of banks and railroads and active in the affairs

of clubs, commercial organizations and civic and welfare movements. The trade is represented by one of the oldest and most progressive organizations in the country — the New England Shoe and Leather association — and in a social way by the equally energetic Boston Boot and Shoe club. Altogether, the shoe and leather section of Boston is one of the most important and most American commercial-industrial nerve-centers in the United States.

While the New England leather and boot and shoe industry originated in and was for a long time confined to Massachusetts, it has now become firmly established in several of the other states, notably Maine and New Hampshire. Roughly speaking, there are something like 1000 tanneries, shoe factories and plants devoted to the production of shoe machinery, lasts and collateral products, in this section, employing about 100,000 workers and producing some $400,000,000 worth of goods annually. There are more than 100 New England communities in which some part of this industry is carried on. Boston, although it has the largest single factory in the world producing women's shoes, is outranked as a footwear producing city by several New England communities, the chief of which are Brockton, Lynn, Haverhill and Marlboro, in Massachusetts, and Manchester and Nashua in New Hampshire. Brockton is the leading center of the manufacture of men's shoes and possesses several great concerns whose advertising campaigns have made their product known throughout the world. It has more than 30 shoe factories, turning out 20,000,000 pairs of shoes valued at above $50,000,000 every year, and in addition has 135 establishments producing leather, shoe manufacturers goods, machinery, lasts, etc. The industry of making lasts is in itself a most important one in New England. Brockton has 13,000 wage-earners in the shoe and leather industry, receiving $9,000,000 in wages annually, and its output of footwear has increased about 60 percent in the last decade. Lynn, the second shoe city of New England, makes a specialty of women's footwear, and in this line leads the world. It has more than 100 boot and shoe manufacturing concerns, and many engaged in

the manufacture of collateral products, its annual output being about $55,000,000. It has 13,000 of the most skillful and best paid shoe workers in the world. The city is virtually the arbiter of style in women's footgear. Haverhill is the world's greatest slipper and low-cut footwear city. It produces 20,000,000 pairs of men's and women's shoes and slippers, valued at $30,000,000, annually, and a large part of this product finds its way into the foreign markets. It is a noteworthy fact that Essex county, in which Haverhill is, manufactures about one-seventh of the footwear produced in the United States, and employs in its numerous shoe factories, tanneries and allied plants, 25,000 workers who receive a total yearly wage of $20,000,000. Marlboro, another thriving Massachusetts shoe center, ranks as the fourth city in shoe manufacturing in that State and the eighth in the United States. It has a number of prosperous concerns whose aggregate annual product has a value of $10,000,000. In the last decade its shoe business has increased about 150 percent. New England "shoe cities" like Rockland, Whitman and Newburyport, Mass., Auburn and Gardiner, Me., and Manchester, Nashua and Dover, N. H., are making gratifying strides along this line of industrial development. One big shoe manufacturing concern having its principal factories in Manchester and its offices in Boston, is credited with a total production today of 28,000 pairs of shoes daily, the largest output of any shoe concern in the world.

From the fact that between 5,000,000 and 6,000,000 cases of shoes are manufactured in New England annually some idea of the magnitude of this business may be gained. The figures of shoe production are only half of the story however, for New England still holds a prominent place as a tanning center, and in Boston alone are the financial or agency headquarters of more than 400 leather and hide concerns of various kinds. Peabody, Mass., may be instanced as a type of the growing and thriving New England tannery town, with its annual product of about $20,000,000. This is the world's greatest sheepskin tanning center. Woburn and Winchester are also important leather centers. A large proportion of

Massachusetts-made leather is sold through the Boston market. Sole leather of all grades and the various kinds of upper leathers, including glazed, are made in New England tanneries. This branch of the industry has an exceedingly promising future. The most advanced methods of scientific tanning and modern merchandizing are in vogue, and the establishment of a school or institute of tanning is among the possibilities of the near future, which has its general as well as its special significance.

While New England has been steadily advancing as a shoe and leather manufacturing section, it has also taken front rank as a producer of the machinery by means of which the modern boot and shoe is fashioned. The work of nearly 100 of these wonderful machines is necessary to the production of the twentieth century shoe, and New England, through the United Shoe Machinery company, has a practical monopoly of the manufacture of these. In the great factories at Beverly, Mass., more than 80,000 leased shoe machines, valued at $40,000,000, have been turned out during the past ten years. The company employs between 4000 and 5000 workmen, and earns more than $5,000,000 net annually. It has branch establishments for the manufacture of its machinery in several foreign countries.

New England has long been noted as the home of paper making. It is now in the enjoyment of that distinction, but like some other industries the making of paper is becoming a national rather than a New England industry. The tremendous increase in the demand for paper for newspapers, magazines and the cheaper grade of books, due to the invention of typesetting machines and the perfected printing and binding machinery, made it necessary to produce these grades in quantities beyond the capacity of New England forests. These papers are made of wood pulp, and the forests of New England were not sufficient to supply the demand. While the greatest of these mills are yet to be found in Maine, there have been many established in the West, and in some southern states. Book paper of the cheaper grades is also now made of wood, and it naturally followed that its manufacture would

follow the big wood-pulp mills. Much of this grade is now manufactured in Ohio, Michigan, Wisconsin and West Virginia. Coated paper for illustrated books and commercial catalogues and booklets is made in the West and South in increasing quantities; and there are some mills outside of New England making considerable quantities of fine papers for writing and blank books, etc. The figures of paper production since 1905 are not available, but it is surmised that the reports of the Twelfth Census may show that the position of New England in the matter of paper has changed, though it is not expected that our supremacy in the production of fine papers will be disputed.

The years from 1900 to 1905 showed remarkable results in the paper industry of New England. The number of mills decreased from 233 in 1900 to 227 in 1905, yet the capital invested increased from $6,151,121 in 1900 to $107,910,058 in 1905, about 76 percent. The improvement of methods of manufacture was indicated by an increase in production from 648,894 tons in 1900 to 980,677 tons in 1905, 51 percent and from fewer mills.

The cost of raw materials used in 1905 totaled to $42,420,803. The value of paper produced amounted to $63,840,217. In 1905 Massachusetts was second and Maine third in production of paper in the United States. Maine showed the greatest gain in product, increasing in five years 73 percent. Maine was second and Massachusetts third in amount of capital invested, New York being a little ahead of both. The increase of capital invested in Maine from 1900 to 1905 was $23,800,755, or 136.2 percent, the greatest ever shown by any state of the Union. This phenomenal progress was due to the waterpowers and forests that state was able to produce. The tons of paper produced in 1905 by the New England states is shown by this table:

	News	Writing	Book	Wrapping	Board	Specialties
Maine	215,300	44,000	67,390	89,900	13,400	2,500
Massachusetts	19,500	80,700	123,500	16,000	27,000	29,000
New Hampshire	80,500	411	12,000	27,100	8,200	26
Vermont	34,400	948	4,400	....	4,590	13,000
Connecticut	....	6,400	6,000	7,000	64,000	5,500

The total product in the United States is shown in the following table, the figures being compiled in May, 1910, from the most authoritative source. Tons are the units:

	Yearly	Daily
News	1,335,321	4266.2
Writing	210,617	672.9
Book	786,163	2511.7
Tissue	102,539	327.6
Wrapping	1,020,914	3261.7
Board	1,190,214	3802.6
Specialties	181,697	580.5
Building and Sheath	368,903	1178.6
Total paper	5,196,368	16,601.8

The amount of all kinds of paper produced in the five New England paper-making states is shown by the following table, expressed in tons. Rhode Island has but one paper mill, with a small production, the figures of which could not be easily obtained. In addition to the varieties named in the table, there is annually made in New England 1,209,646 tons of "coating," the stock used as the base for coated papers of all kinds. There was produced in the United States 3,630,961 tons of this stock. Massachusetts made 51,676 tons of building and sheathing paper:

	News	Writing	Book	Tissue	Wrapping	Board	Specialties
Maine	346,178	14,685	107,985	....	117,062	38,280	....
Mass.	15,932	103,634	128,737	4,664	9,171	86,983	22,129
N. H.	124,480	....	14,586	8,764	52,928	10,830	4,695
Vermont	17,059	....	....	16,620	14,523	4,006	14,711
Conn.	7,825	5,008	908	4,632	10,110	94,057	11,205

The city of Holyoke has a world-wide reputation for producing fine and book papers. It is the greatest paper center in the world. Its mills turn out 200 tons of fine paper daily, one-half of which is "tub-sized, loft-dried" writing paper — about one-half of this variety of paper made in the United States. Dalton, Mass., is famous for its production of fine paper, and it is here that the paper for government bank notes is manu-

NASHAWENA COTTON MILLS, NEW BEDFORD, MASS.

Newest of the three great New Bedford cotton mills of which William Whitman is president — the others being the Nonquitt and Manomet. The Nashawena is the largest staple cotton mill ever built at one time in the United States.

factured. New Hampshire is next to Maine in manufacture of news paper, and has some very good forests and water-powers. Connecticut and Vermont produce straw and leather board in great quantities, but are barely holding their position as paper-producing states. While the industry in New England has shown most wonderful progress and activity in the years 1900 to 1905, since 1906 it has been virtually at a standstill. Low water in rivers, strikes, tariff changes and business depression have all played a part. The great companies manufacturing news and book paper in Maine and Massachusetts have experienced strikes which greatly curtail their production.

The bulk of the jewelry industry of this country is confined, as to its manufacture, into two very narrow areas. If a man stood in Jersey City and could draw a circle with a radius of ten miles, and another man could stand in Pawtucket, R. I., and draw a similar circle with a radius of ten miles, there would be inclosed within those circles more than 90 percent of the jewelry and silverware manufactured in the United States. The New England circle contains factories producing goods of considerably greater value than the New Jersey and New York circle. By the census of 1900 the value of the productions of jewelry in Providence totaled about $13,000,000. The Attleboros contributed more than $8,000,000 more; the two groups together producing more than $21,000,000 worth of jewelry at the time the census of 1900 was taken. New York and Newark together manufactured a little more than $16,000,000 worth of goods. By the Rhode Island state census of 1905, Providence was shown to have increased its output of jewelry to $14,500,000, while its output of silverware was $5,500,000. The Attleboros in the same year produced $8,250,000 of jewelry and more than $2,000,000 of silverware, this latter output having increased nearly 400 percent in five years. There are something more than two hundred jewelry factories in Providence, and ten silversmith establishments; while in the Attleboros there are about one hundred jewelry factories and ten silversmith establishments.

These concerns employ in Providence an average of nine thousand people, and in the Attleboros an average of five thousand.

The manufacture of machinery in New England ought to be made the subject of a chapter, and might well be made to fill a large book. The facts regarding it are not available. Few of the large concerns know about aspects of the business that do not directly apply to their own business, and the Federal Census reports are either too diffuse or too concrete to make them available for the purposes of this book. The trade associations have not specific data on file and have no systems of keeping in touch with the development of the business of their members.

In some lines New England manifestly leads the world in the manufacture of machinery. Nine-tenths of the textile machinery made in the United States is made in New England, where it was invented. The great establishments at Lowell, Whitinsville, Hopedale, Worcester and Hyde Park, dominate the field so far as looms and other textile machinery are concerned, and there are many other cities and towns that are interested in various lines of machinery used in textile mills. The Draper concern at Hopedale and the Whitin corporation at Whitinsville have made themselves notable for inaugurating advanced living conditions for their employes, and have built up model villages. The New England peculiarity of the great textile manufacturies in New England is that each of them originated or greatly improved the machines they build. The inventive brains in the Draper family and among their employes have revolutionized the weaving of certain branches of textiles. The Knowles and Crompton inventors have evolved looms that have in their sphere worked another revolution, and resulted in the building up of a great group of factories at Worcester, with branches at Philadelphia and elsewhere, unequaled in the world. At Hyde Park the more modest Stafford works are in the same position, of having some specialties that are necessary for the successful operating of certain textile mills.

There are everywhere in New England specialties in manu-

facturing that have risen from an idea in the mind of an inventor to concerns that dominate in the world. The great B. F. Sturtevant concern at Hyde Park, Mass., is an example. Conceived in the brain of a Maine shoemaker less than two generations ago it has come to be the largest concern in its line in the world, and is making a line of apparatus that is essential to the economic operation of power plants everywhere. Westfield, Mass., makes 90 percent of the whips made in the United States; Leominster, Mass., makes a very large proportion of the shell goods manufactured in the United States; Athol, Mass., makes three-quarters or more of the fine mechanics tools made in the world; Worcester makes a great proportion of the wire and wire goods produced in the country; Holyoke, Mass., makes half or more of the fine papers made in the United States; Dalton, Mass., makes all of the paper the government uses for its currency, and a big proportion of the high-class ledger paper; Pittsfield, Mass., leads in the production of correspondence papers and the making of boxed writing paper; Mittineague, Mass., has earned distinction for making paper for high-class commercial and correspondence purposes; Brockton and Lynn mean shoes the world over; Manchester, Fall River and New Bedford mean cotton goods; Plymouth has the biggest cordage concern; Quincy is noted for the big Fore River shipbuilding concern; Attleboro, Mass., and Providence lead the world in jewelry, and Providence has the most notable silversmith establishment in the country; South Framingham, Mass., has the unique Dennison concern, making a bewildering variety of fancy and useful articles from paper; Rutland and St. Johnsbury, Vt., have each great scale works, while Rutland and its vicinity produce much of the marble quarried in the country; and this meager symptomatic list might be prolonged to ten times its length.

Printing and publishing merits special reference. In value of products New England is fourth among the seven groups of states, having turned out in 1905 $46,764,193. This is but about one-fifth of the gross product of the four North Atlantic states, and we have therefore no warrant to claim leader-

ship in bulk of output. Considered as a bulk product printing and publishing follows the population. If we figure this product per unit of population it is found that New England is well at the front. And if we consider the character and importance of the product we find that New England is far in advance. This satisfies us here in New England, where are located several of the most notable printing establishments in the world.

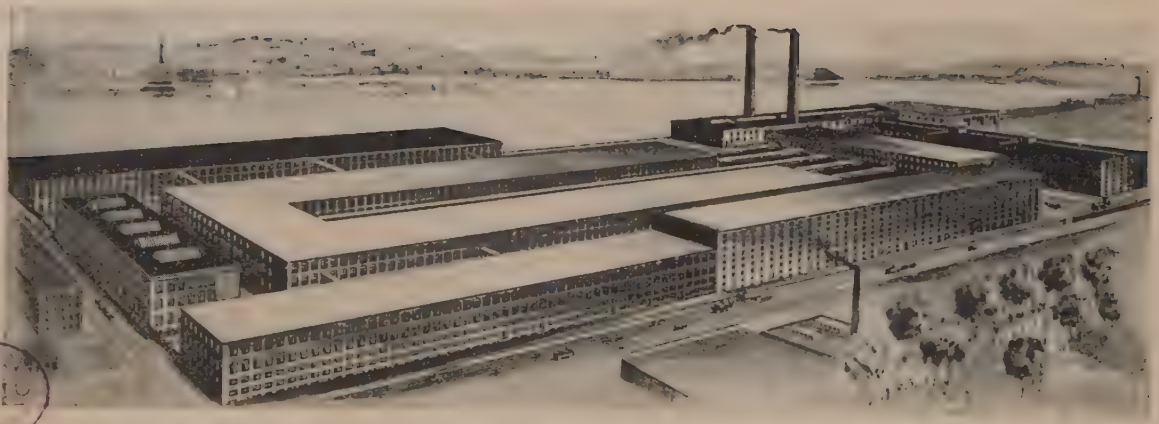
Canned and preserved fish may be mentioned as one of the New England specialties that have done something material for the advance of civilization, in the way of providing good food at low cost. The industry began in Maine, in 1843, when lobsters and mackerel began to be canned by Treat, Noble & Halliday. Maine is now second to Alaska in amount of canned fish, its product amounting to about five millions annually. Massachusetts produces two-thirds of the salted fish of the United States, and is second in canned and preserved fish. That State produces three times the amount of salted cod produced in all the other states. In this particular line of business, Nature has favored New England by giving her the Atlantic ocean for a fish preserve.

To focus the matter of the relative standing and progress of the New England states in manufacturing as clearly as possible, we quote briefly from the reports of the Federal Census for 1905, the latest available figures for all the states. None of the New England states, save Massachusetts, publish adequate manufacturing statistics annually.

Between the census of 1900 and that of 1905 the number of manufacturing establishments in Massachusetts decreased 206, or 1.9 percent. The capital however increased $184,081,172, or 23.5 percent; the average number of wage-earners, 50,165, or 11.4 percent; the wages $37,110,670, or 19 percent; and the value of products, $216,465,612, or 23.8 percent. The reports of the Twelfth Census show 29,180 establishments in Massachusetts, with 497,448 wage-earners, and products valued at $1,035,198,989. Of these establishments, 10,929 — employing 438,234 wage-earners and manufacturing products valued at $907,626,439 — are comparable with

the class of establishments included in the census of 1905, when the number of establishments reported was 10,723, the number of wage-earners, 488,399, and the value of the products, $1,124,092,051. The 56 places of 8,000 or more inhabitants in 1900, classed as the urban districts, contained 76 percent of the total population in the State at the United States census of 1900 and 76.6 percent at the State census of 1905, and this proportion of the population is fully sustained by the comparative importance of these places in manufactures. The urban districts contained 77.8 percent of the establishments in both 1900 and 1905. The capital invested in the urban establishments formed 83.5 percent of the total for the State in 1905 and 83.4 percent in 1900. The number of wage-earners formed 81.4 percent and 81.1 percent for the two censuses, respectively, while the value of products for these districts was 82.9 percent in 1905 and 82.1 percent in 1900. The urban districts showed the larger rates of increase in all items except for the number of women employed, and their wages, and miscellaneous expenses.

The increase in the number of establishments in Connecticut shown by the 1905 census figures was 95, or 2.8 percent. The total capital increased $74,076,655, or 24.8 percent, and the value of products, $53,975,941, or 17.1 percent; while the average number of wage-earners increased 21,872, or 13.7 percent, and the total wages, $14,548,566, or 19.8 percent. The continued prosperity of the State is also shown by the fact that whereas in 1900 the average number of wage-earners employed in all the manufacturing and mechanical establishments of the State, including neighborhood industries and hand trades, was 176,694 in 1905, the number employed in the establishments conducted under the factory system alone was 181,605, the increase being 4,911, or 2.8 percent. In 1900 the number of wage-earners in factories was 159,733, an increase of 21,872, or 13.7 percent. The value of products for all manufacturing and mechanical establishments in 1900 was $352,824,106, while in 1905 for factories alone it was $369,082,091, the increase being $16,257,985, or 4.6 percent. The value for the factories in 1900 was $315,106,150, and the increase, $53,-



PRINT WORKS OF PACIFIC MILLS, LAWRENCE, MASS., LARGEST IN THE WORLD

The Pacific mills manufacture both cotton goods and worsted dress goods, and are among the greatest of textile corporations, with plants at Dover, N. H., as well as at Lawrence.

975,941, or 17.1 percent. Of the factories reported in 1905, 57.5 percent were in the urban districts, while in 1900 the percentage of urban establishments was 54.3. The value of the products manufactured in the urban districts was 66.7 percent of the total for the State in 1905, and 66.6 percent in 1900.

The 1905 census figures show a decrease of 61 in the number of Rhode Island manufacturing establishments. The total capital however increased $38,999,769, or 22 percent, and the value of products, $36,559,201, or 22.1 percent; while the average number of wage-earners increased 9,121, or 10.3 percent, and the total wages, $7,117,536, or 19.8 percent. The reports of the Twelfth Census show 4,189 establishments in Rhode Island, with 98,813 wage-earners, and products valued at $184,074,378. Of these establishments, 1,678 — employing 88,197 wage-earners and manufacturing products valued at $165,550,382 — are comparable with the class of establishments included in the census of 1905, when the number of establishments reported was 1,617, the number of wage-earners, 97,318, and the value of the products, $202,109,583. Of the factories in the State, 16.5 percent were in rural districts in 1905, as compared with 17.5 percent in 1900. The value of products in rural districts was 18.2 percent of the total for the State in 1905 and 17.1 percent in 1900. The percentages of increase in capital, total average number of wage-earners, total wages and value of products were greater for the rural than for the urban localities.

Between the census of 1900 and that of 1905 the number of manufacturing establishments in Maine increased 267. The capital increased $29,700,035, or 26.1 percent, and the value of products, $31,061,099, or 27.5 percent; while the average number of wage-earners increased 5,044, or 7.2 percent, and the amount paid for wages, $6,961,024, or 27.1 percent. The reports of the Twelfth Census show 6,702 establishments in Maine, with 74,816 wage-earners, and products valued at $127,361,485. Of these establishments, 2,878 — employing 69,914 wage-earners and manufacturing products valued at $112,959,098 — are comparable with the class of establish-

ments included in the census of 1905, when the number of establishments reported was 3,145, the number of wage-earners 74,958, and the value of the products $144,020,197. Rural districts contained 77.9 percent of the establishments reported in 1905 and 75.4 percent in 1900. The value of the products of rural establishments was 67.5 percent of the total for the State in 1905 and 64.2 percent in 1900. The actual, as well as proportionate, increases in capital, number of wage-earners, wages and value of products were greater for the establishments in the rural districts than for those in the urban.

Between the census of 1900 and that of 1905 the number of manufacturing establishments in New Hampshire decreased 153. The capital, however, increased $17,349,047, or 18.8 percent, and the value of products, $16,020,101, or 14.9 percent. The average number of wage-earners decreased 2,280, or 3.4 percent, but the amount paid for wages increased $1,843,572, or 7.1 percent. Urban districts contained 33.6 percent of the establishments reported in 1905, and 32.3 percent in 1900. The value of the products of urban establishments was 59.5 percent of the total for the State in 1905, and 58.1 percent in 1900.

The number of manufacturing establishments in Vermont decreased from 1,938 in 1900 to 1,699 in 1905. The total capital increased $20,159,101, or 47.4 percent, and the value of products, $11,568,383, or 22.5 percent. The average number of wage-earners increased 4,927, or 17.5 percent, and the total wages, $3,794,511, or 33.2 percent. The percentages of increase were greater for the rural than for the urban districts. Of the establishments reported, 86.9 percent were in rural districts in 1905 and 85.3 percent in 1900. Of the total number of wage-earners, 81 percent were credited to rural districts in 1905 and 80.1 percent in 1900.

New England Waterpowers

The splendid rivers and streams of New England are today yielding only about 48 percent of their total available waterpower. It was the statement of Charles P. Steinmetz, consulting engineer of the General Electric company, made in 1909, that in Massachusetts alone "more waterpower goes to waste annually than is found in Niagara itself." In the six New England states there are approximately 120 rivers and streams available for power, and according to the estimate of engineers these have, in addition to the power they were generating in 1909, a total of 509,500 horsepower immediately available; and with the construction of storage basins a grand total of 676,000.

As the United States census shows, in waterpower developed and potential, New England ranks close to the highest of the various sections of the country. A special census of the developed waterpowers in the Union, made in 1908, places Maine third in the list of numbers developed in each state. New York heads the line, with a development of 885,862 horsepower, the Niagara powers on the New York side contributing largely to this figure. California is the second, with a total of 466,777, over 1070 wheels — a development in comparatively recent years. Maine secures her place as third, with 343,096 horsepower, over 2797 wheels. Of other New England states Massachusetts ranks second to Maine, with 260,182 horsepower, over 2749 wheels; New Hampshire comes next, with 183,167 horsepower, over 1793 wheels; Connecticut next, 118,145 horsepower, 1546 wheels; Vermont next, 90,672 horsepower, 1047 wheels; Rhode Island last, 37,165 horsepower, 387 wheels.

These census returns showed a total of 31,537 developed waterpowers in the whole country, 602 of which are of a capacity of one thousand horsepower or more. The whole

number were generating a total horsepower of 5,356,680, over 52,827 wheels; or an average development per wheel of about one hundred horsepower. The six New England states had 5700, generating a total of 1,032,427 horsepower, over 10,325 wheels. These 5700 powers were thus distributed:

States	Waterpowers	Wheels	Horsepower
Connecticut	893	1546	118,145
Maine	1222	2797	343,096
Massachusetts	1370	2749	260,182
New Hampshire	876	1799	183,167
Rhode Island	191	387	37,165
Vermont	1148	1047	90,672
	5700	10,325	1,032,427

The installations by districts and drainage area are shown in this table:

State	Rivers	Wheels	Horsepower
Connecticut	Connecticut River	490	33,101
"	Thames River	478	45,214
"	Housatonic River	364	31,635
"	Minor Streams	214	8,145
Maine	St. John River	147	13,681
"	St. Croix River	89	20,500
"	Penobscot River	518	70,454
"	Kennebec River	659	63,936
"	Androscoggin River	590	101,355
"	Presumpscot River	179	20,569
"	Saco River	169	22,302
"	Minor Streams	446	30,299
Massachusetts	Merrimac River	589	71,250
"	Connecticut River	1117	123,309
"	Blackstone River	182	14,111
"	Thames River	88	8,499
"	Housatonic River	138	14,206
"	Hudson River	54	5,245
"	Minor Streams	581	23,561
New Hampshire	Saco River	68	3,030
"	Merrimac River	877	90,082
"	Connecticut River	574	50,977
"	Minor Streams	187	16,978
Rhode Island	Blackstone River	156	17,324
"	Thames River	1	25
"	Minor Streams	230	19,816
Vermont	Connecticut River	927	85,512
"	Hudson River	118	5,160
"	Lake Champlain (Richelieu River)	971	79,604
			1,089,930

These figures are drawn from the water-supply papers of the United States Geological Survey: No. 234, "Papers on Conservation of Water Resources." Prof. M. O. Leighton treats the undeveloped waterpowers in the same number, and presents schedules giving the amount of waterpower according to three classifications: (1) that which may be produced by the minimum flow, (2) the assumed maximum development, (3) the additional power that may be recovered by developing the available storage capacity in the upland basis and using stored water to compensate the low-water periods. These schedules, as he states, disclose "what will be the maximum possibilities in the day when our fuel shall have become so exhausted that the price thereof for production of power is prohibitive, and the people of the country shall be driven to the use of all the waterpower that can reasonably be produced by streams," — a time not long far-distant, in the estimation of some economists. The total power available in the surveyed parts of the country, including storage, is given as 53,000,000 horsepower. Taking this as one-fourth of the whole, since the topographical surveys cover only one-fourth of the total area of the country, Professor Leighton places the total power, with practical maximum storage, at 212,000,000 horsepower. Otherwise computed, by taking the ratio of increase of power available for storage in the several parts surveyed and applying this to the ratio of increase in unsurveyed and similar country in those regions, he reaches a grand total of 230,800,000 horsepower. Calculated either way, it is safe to assume that, as he says, "were all practicable storage sites utilized and the water properly applied there might be established eventually in the country a total power installation of at least 200,000,000 horsepower, and probably much more." Professor Leighton gives the data of this dazzling total of potential waterpowers over the various drainage areas of the country by districts or divisions. New England is included in the Northern Atlantic division — from St. Johns to Cape Henry, Virginia, — which comprises the New England states, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia and Virginia. This

division (exclusive of Pennsylvania, the figures for which had not been received at the publication of the report) shows a minimum horsepower of 1,712,050, and an assumed maximum development of 3,186,600. The estimated proportion contributed by the New England rivers appears in these figures:

River	States drained	Horsepower	
		Minimum	Assumed maximum development
St. John	Maine	30,500	73,800
St. Croix	"	28,700	49,000
Penobscot	"	157,000	298,000
Kennebec	"	144,000	284,000
Androscoggin	Maine, New Hampshire	168,000	218,000
Saco	" " "	20,900	69,000
Merrimac	New Hampshire, Massachusetts	111,000	190,000
Connecticut	Vermont, N. H., Mass., Conn.	230,000	491,000
Blackstone	Massachusetts, Rhode Island	5,280	12,700
Thames	Massachusetts, Connecticut, R. I.	14,400	28,600
Housatonic	New York, Massachusetts, Conn.	43,100	66,200
		952,880	1,780,300

The natural advantages of the New England waterpowers, and their exceptional richness, are readiest seen through a survey of the rivers of the six states from source to mouth. Such a study in part has been made in recent years by engineers of the United States Geological Survey, and the latest results are embodied in the reports of Henry A. Pressey on "Water Powers in the State of Maine," and of H. K. Barrows, district hydrographer, on "Surface Water Supply of New England" (Atlantic coast of New England drainage), issued respectively in 1902 and 1906 in the valuable series of water-supply papers; and in these illuminating documents we have accurate data.

Beginning with Maine, as the richest of all in waterpowers, we find this unqualified statement at the outset of Mr. Pressey's report — that "no other tract of country of the same extent on the continent is so well watered; supplied with lakes and streams well distributed." Here are five principal lake chains or systems, large lakes connected by rivers and discharging into main channels which convey their accumulated waters to the sea. The elevation of these lake systems —

high for lakes so near tidewater — their location largely near the headwaters of the streams, the short courses of the outflowing rivers, and the lakes acting as regulators of their flow, combine to make the rivers of Maine "the finest in the United States for waterpower development."

The five lake systems, beginning on the western boundary of the State, are: (1) the Umbagog-Rangeley series; (2) the Moosehead series; (3) the Penobscot series, consisting of Chesuncook and its surrounding lakes on the west branch of the Penobscot river, Alleguash, Chamberlain and others on the east branch, and the Seboeis and others connected with it still further east but flowing into the east branch of the Penobscot; (4) the Shoodic lakes in the southeastern part of the State; (5) the numerous lakes forming the headwaters of the St. John river and its tributaries. The Umbagog-Rangeley series, with an area of ninety or more square miles, are drained by the Androscoggin river. The Moosehead series, the main lake of which is one hundred and twenty square miles in area and is the largest inland body of water in New England, form the headwaters of the Kennebec. The Penobscot series are the fountains of the Penobscot. The Shoodic series are drained by the St. Croix. Numerous other lakes, in every county of the State, though small in area, in the aggregate hold, as the engineers estimate, an immense amount of storage water. The grand total number of lakes, not including small ponds tributary to the streams, is placed at 1620, and their aggregate area 2300 square miles. So equable is the flow of the streams of Maine that the present users of her waterpower, Mr. Pressey observes, "seldom realize the difficulties under which developments are made in other parts of the country where there are no lakes, ponds or marshes upon which to draw during the period of low flow, necessitating the shutting down of the works during that season, or the construction of auxiliary steam plants which require fuel and for which interest and repairs must be provided throughout the year." The variation in the flow being naturally comparatively small, when controlled by dams at the outlets of the lake, the uniformity of the discharge is "almost unparalleled."

Let us review these rivers and their waterpowers, with Mr. Pressey, in the order named in the second table above. First, the Androscoggin. We find this busy stream formed by the junction of the Magalloway river and the outlet of the Umbagog-Rangeley lakes near the Maine-New Hampshire boundary line, and extending about two hundred miles in length from the sources of the Magalloway river to the coast. It flows first southward into New Hampshire; then turning abruptly to the east it takes its course into Maine; then again turning southward it ultimately joins the Kennebec in Merrymeeting bay. Its last fall is at Brunswick which is at the head of tidewater some six miles above the mouth. The elevation of the river's basin is stated to be, in general, greater than that of any other watershed on the Atlantic coast. The outlet of Umbagog lake is 1256 feet above the sea; Rangeley lakes are about 1500; and the sources of the Magalloway river from 2600 to 2900 feet. Its entire fall from the level of the Umbagog to tidewater is about 1250 feet, while in various stretches it ranges generally between four and a half and seven and a half feet to the mile. At three important points, however — Berlin falls in New Hampshire, Rumford falls and Lewiston — there are large concentrated falls by which the natural falls have been considerably increased by dams. The river's flow is regulated by means of a dam below the mouth of Magalloway, by which the waters of that stream can be turned back into Umbagog; and dams at the outlets of the four large lakes of the Umbagog-Rangeley system convert the lakes into a series of immense reservoirs, and controlling the storage of some 760 square miles which can be discharged as desired for use during the dry seasons. Except above Berlin falls the river is nowhere more than ten miles from a railroad, and for a good part of its course it is skirted by railroads. Tidewater navigation extends to the falls at Brunswick. Above Berlin falls, remote from transportation facilities, little or no power is yet used, except for logging; and the region, like others in northern Maine, is a paradise of hunters. The total amount of power used in the Androscoggin river is said to be greater than that employed in any other

New England stream. Yet there is much still unused, as the foregoing tables show. Great as are the establishments now fixed on its banks controlling and utilizing it, there are opportunities for as great at various points. The largest present employers of the waterpower here are cotton and wood pulp and paper manufacturers; together with electric light and power generators. The development in the last decade, or more, for manufactures has been almost exclusively by wood pulp and paper makers. At the period of the latest engineers' reports, 1902–1907, it was estimated that this class was then utilizing more than two-thirds of the total waterpower in use. This growth in a single line of manufacture is natural, in view of the fact that the upper Androscoggin basin contained, till the cutters had made great inroads into it, the finest spruce forest in New England; and the forest is yet extensive.

Second, the Kennebec river. This is rightly presented by the engineers as one of the best streams in the United States for the development of waterpower. Its drainage basin embraces a total area of 6330 square miles. Between Moosehead lake, where the river rises approximately 1050 feet above sea-level, and the head of tidewater, the fall is 1026 feet, an average descent of $\frac{8}{5500}$ feet for 120 miles. The upper parts of the basin are still heavily timbered despite the extensive cuttings of years. From these forests are yet cut, it is estimated, about a third of all the lumber used in the State for pulp and paper manufacture, the remainder being almost wholly taken from the timber lands of the Androscoggin and Penobscot basins. The river pursues a general southerly course to Merrymeeting bay, whence it reaches the ocean. Its fall for the first fifty miles is rapid, amounting to more than 700 feet in this distance. From Indian pond, an enlargement of the river four miles below Moosehead, to the Forks, where Dead river, a tributary which rises at an elevation of 2000 feet, enters, a distance of twenty-three miles, the fall is 500 feet. For a considerable part of this distance the river is described as running a little torrent between steep rocky walls from twenty to fifty feet high. Through this first fifty miles no

waterpower is utilized. The uppermost developed power is at Carritunk falls, near the town of Solon. Between the Forks and this point the river's fall is about 200 feet, and here is a natural cascade with a pitch of twenty-eight feet through a narrow gorge, above and below which the river widens out. The dam affords an average head of about twenty-nine feet. We have seen that the utilization of this river's superb waterpower embraces a comparatively small proportion of its course. The seven developed powers between Carritunk falls and tidewater, which Pressey describes (1902) and Porter (1898–99) before him, were utilizing an aggregate of 24,000 effective horsepower covering 142 feet only of the 314 feet total fall of the river between these points. Barrows (1906) remarks, of the 1026 feet fall on the river between Moosehead lake and tidewater, only about 153 feet developed. Over the opportunities for further development along this river the engineers are eloquent. Barrows dwells upon the immense amount of unutilized power, especially in the more northerly parts of the Kennebec basin. He points out the opportunities for development in the run below Indian pond to the mouth of Dead river. Pressey observes the large powers available for future development in the stretch of river from below the mouth of Dead river to Carritunk falls. Excellent opportunities are also found on the principal tributaries of the Kennebec. The Carrabassett, which enters from the west at North Anson, presents several good sites for further development. The several powers now utilized on this stream are employed in pulp and paper manufacture, saw and planing mills, and electric light generating. The Sandy river, rising near Rangeley lake, and entering the Kennebec two miles below Madison, with a rapid fall through the greater part of its course, has promising opportunities. The few developed powers here, at Phillips, Fairbanks, Farmington, New Sharon and Stark, are variously used in lumber mills, small factories, and for generating electricity. Sebasticook river, entering from the east opposite Waterville, is remarked as one of the most fully developed for power of all the Kennebec's tributaries, yet there are on this stream a number of good

unoccupied powers available. The powers utilized at various points are used mainly by woolen mills, and by an electric light and power plant. Messalouskee river, entering from the west at Waterville, offers similar opportunities. The powers here developed are also used by woolen mills, shoddy mills, scythe, axe and tool factories, and machine shops; and for producing electric light and power. Cobbosseecontee river, entering six miles below Augusta, at Gardiner, has eight dams, and sites for more. The municipal water supply for the city of Gardiner is here drawn and pumped by waterpower. The fall of this stream is given as 206 feet.

The Penobscot, next in order, is distinguished as having the largest drainage basin of all the rivers of Maine: a total area of 8500 square miles, or as Porter, the second engineer-historian of the Maine rivers, puts it impressively, more than a quarter of the entire State. A large part of this basin is yet "wild land," heavily timbered and much of it known only to lumbermen and the sportsmen. Within the Penobscot basin there are counted a total of 467 lakes. The west branch of the Penobscot is the main one. It flows from its headwaters first southeast and easterly, and passes within two or three miles of the head of Moosehead lake; then turning and flowing northward it enters Chesuncook lake, which lies near the center of the basin, fifty miles from the head of this branch, at an elevation of 930 feet. Thence it flows east and southeast to the Pamedecook and the Twin lakes. In the next thirty miles below Twin lakes to the mouth of the Mettawamkeag river, which enters not far south of the union of the two branches, the stream descends 288 feet; and because of this rapid fall, the enlarged drainage area, and the extensive storage facilities afforded by the lakes, this stretch, as Porter shows, possesses great intrinsic value. From Chesuncook lake to tidewater, at Bangor, the distance along the west branch and the main river is about 121 miles, an average slope of seven feet to the mile; and this is concentrated at intervals by ledges where waterpower has been and may further be developed. At the Twin lakes, or the outlet of North Twin lake, is Twin dam, built by the Penobscot Log Driving company, by which is con-

trolled for logging purposes a splendid storage afforded by the several connecting lakes of this region. Other dams, farther upstream at the foot of other lakes, are also maintained by this company for service in log-driving; and downstream, at the outlet of Millinoket lake a few miles below North Twin dam. The lumber industry is the most important in the Penobscot valley. The largest users of the power are the pulp and paper mills; the second largest users are the saw mills. At Millinoket, where the Millinoket river coming from the lake of the same name enters the west branch, is the uppermost utilization of waterpower. Here are the Millinoket mills, claiming to be the largest pulp and paper plant in the world, operating some 20,000 h.p. The power here developed utilizes the total fall between the North Twin dam and the outlet of Millinoket river. Between the latter place and Medway, where the east branch enters, there is a large fall. Below the mouth of the Mettawamkeag the river turns southerly, and from this point to tidewater, a run of sixty miles, it falls 177 feet.

The St. Croix river, next on the list, marks, with its tributary lakes, nearly half of the eastern Maine-New Brunswick boundary. It is formed by two branches. The upper, known as the Upper St. Croix or Chiputneticook river, is the outlet of Schoodic lake; the other, west branch, or Kennebasis river, is the outlet of the western lakes of the basin known as Kennebasis lakes. More than half of the drainage area, which is about 1630 square miles, is tributary to great reservoir systems controlled by dams at Vanceboro, on the Upper St. Croix, and Princeton, on west branch. Above Vanceboro and Princeton each branch is a succession of lakes to almost the extreme headwaters. The length of the river from headwaters to mouth is one hundred miles. The basin is lower than those of the other great rivers flowing to the Atlantic, the elevation of its headwaters being only about 540 feet; yet the fall from the lower of the Schoodic lakes — the Chiputneticook — to tidewater, a distance of fifty-four miles, is 382 feet, or seven feet to the mile. At a number of points, falls and rapids occur, affording excellent opportunities for waterpower devel-

opment. This river has been for a long period largely employed in the logging business, the cuttings being made in the extensive timber lands of the region above Vanceboro and Princeton; and the principal industries along its course have been lumber manufactures. The greater part of the timber of the upper region was brought into the control of the saw-mill owners of Calais at the head of tidewater, and of St. Stephens opposite Calais on the Canadian side; while the storage in the principal reservoirs is controlled by the St. Croix Log Driving company comprising the various mill owners on the river. In later years the number of saw mills was considerably reduced, and in their stead rose pulp and paper mills. Today pulp and paper making is becoming the leading industry of the St. Croix valley. Of the amount of the river's natural fall from below the Vanceboro dam to mean tide at Calais, two-fifths in the aggregate is concentrated at Spednic falls, about two miles above the mouth of the west branch, which form an important water privilege at Grand Rapids, Sprague's falls, where the waterpower is an excellent one, and Calais.

The St. John river flows through Maine a length, including the more important meanderings, of some 210 miles; while the total length from its remotest sources to the sea is figured at approximating 450 miles. That part of its basin that lies in Maine occupies the whole northern part of the State. The greater part of its basin is forested. Its extreme headwaters lie in the mountainous region between Maine and Canada at an elevation of from fifteen hundred to two thousand feet. From its junction with the St. Francis river, at the northwest part of the Maine line, it forms the northern boundary of the State. On the east side of the State it receives the waters of the Aroostook and the Meduxnekeag rivers, the basins of which are almost wholly in Maine, besides several smaller tributaries rising in the State. The elevation of the river at the upper Maine boundary is 419 feet above tide, and at the mouth of the St. Francis 606 feet. Next to the Androscoggin it has the most elevated drainage in Maine. For the reason that the whole drainage basin is at a considerable altitude

and not parts of it at an extreme elevation, the engineers remark, the fall of the stream and the possibilities of the development of waterpower are far less than upon any of the other large rivers of Maine. Yet that it has possibilities of no small proportion is made apparent. With the extension of proper transportation facilities these possibilities will surely be developed, and, as the engineers say, they will be trustworthy throughout the year because of the river's numerous tributary lakes. It is Pressey's reasonable forecast that with the development lumbering and pulp and paper manufacture will become the leading industries. The river is navigable throughout a large part of its course. Of its tributaries, the Aroostook is the largest. This river rises in highlands in the north central part of the State at an elevation of some 1050 feet, and where it unites with the St. John its height is 345 feet. Its total length is 117 miles, giving an average fall of six feet per mile; and by reason of the many lakes at its headwaters and on its tributaries, the flow is comparatively uniform throughout the year. Developments of waterpower have been made in a few cases only, while at a number of points along its course, as the engineers point out, rapids occur which might be profitably utilized. The Alleguash is the second largest tributary in Maine. It rises in an upper lake, and also has a number of undeveloped powers in rapids and small falls here and there. The St. Francis, joining on the northern border of the State, forms the upper boundary line for about forty miles. Its considerable undeveloped power is found particularly at its mouth.

The Presumpscot river is set forth by the engineers as one of the best waterpower streams of its size in the United States. It is the outlet of Sebago lake, which lies only about seventeen miles northwest of Portland, and discharges into Casco bay. Sebago lake is fed by Crooked river, which heads thirty-five miles farther north within three miles of the Androscoggin. The Presumpscot's fall from the dam at the foot of the lake to mean low tide at the foot of its lower falls is an average of $\frac{1}{2}\frac{7}{5}\frac{8}{0}\frac{0}{0}$ feet a mile in a distance of 21.65 miles. Its chief interest is found in the regularity of its flow due to the

dams erected at the outlet of the lake. Nowhere in the United States, the engineers say, is there a better example of the success of storage of water and regulation of the flow of a stream than here. The largest users of power on this river are the Samuel D. Warren & Company, paper manufacturers, whose extensive plant constitutes the Cumberland mills. Some 3000 horsepower are employed in these mills from all sources, half this amount from water direct, and half from steam and electricity, the latter being transmitted from lower falls six miles below. At Saccarappa the waterpower is used by cotton, and several smaller mills, and for electric light generation. At other falls are woolen and board mills. Crooked river has several good falls, some of which are utilized.

Saco river, the last in the list, receives its headwaters from the valleys and slopes of the White mountains at elevations from 4000 to 5000 feet, and drains an area of 1720 square miles, of which 900 are in Maine. The slopes of the headwaters are very steep. For the first twelve miles it falls more than 1100 feet. Then in a distance of rising eighteen miles the fall is 330 feet. Next follows a stretch of "dead" water with a drop of only sixty-nine feet in twenty-eight miles. This ends at Great falls in Maine, in the town of Hiram, where the river descends seventy-two feet in successive pitches in about 900 feet. Thence it flows forty miles to tidewater at Biddeford and Saco with a total fall of 271 feet. The important part of the river therefore is this stretch from Great falls to tidewater.

In his summary concluding his report Pressey notes the remarkable increase in the development of the Maine waterpowers in comparatively recent years, with the significant fact that this development has been going on principally in the direction of larger wheels and more extensive plants. Yet the opportunities here are as inviting for small as well as for large industries. As Mr. Lyons, the state commissioner of industrial and labor statistics, truly says: "For those wishing to embark in manufacturing be it the man who needs only a small waterpower for a part of the year, or the corporation that wishes to erect an immense cotton mill, the State has the

Year	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Jan.	3.02	3.60	4.35	3.30	5.01	5.96	5.95	4.56	4.20	3.11	2.99	6.69	4.01	2.67	2.69	2.91	2.41	3.64	6.84	3.28	4.91	2.20	2.22	3.39	3.65	4.07	2.42	3.34	2.27	3.86
Feb.	1.49	4.18	5.18	3.20	5.95	3.58	5.12	4.49	4.70	1.93	3.90	3.57	2.31	6.25	2.91	0.75	4.28	2.51	3.02	3.19	8.78	0.78	2.28	4.08	1.87	1.59	2.36	1.66	4.55	4.98
Mar.	0.68	4.68	2.99	1.99	4.53	1.80	3.12	4.31	5.63	2.52	6.00	4.83	2.80	2.48	1.19	3.17	6.97	3.69	1.37	7.07	5.55	5.18	6.18	5.77	2.41	3.21	4.92	1.94	2.51	3.27
Apr.	2.51	1.50	1.11	2.80	3.82	3.13	2.36	3.36	3.65	2.82	1.79	1.75	0.81	2.37	2.11	4.72	0.95	2.48	4.85	1.83	1.59	6.90	5.57	1.92	8.55	2.08	2.47	2.52	1.83	3.83
May	1.45	3.59	5.05	3.79	3.00	2.65	2.22	2.62	3.83	2.25	4.33	1.54	6.14	4.99	4.58	2.39	2.60	4.00	3.10	1.34	2.71	6.12	3.47	0.57	3.72	1.83	7.10	2.69	4.28	1.58
June	1.87	3.12	2.41	1.60	1.37	2.94	2.21	3.77	0.71	2.88	2.63	3.45	4.47	1.55	0.41	2.87	0.92	6.56	2.97	1.91	1.61	1.32	3.59	9.31	2.48	5.65	6.32	3.39	0.61	2.14
July	5.03	3.83	2.58	5.44	1.95	2.89	2.29	7.12	1.30	5.17	3.14	3.01	1.89	1.50	2.47	5.18	2.22	6.46	1.50	3.97	1.14	2.90	3.64	3.54	1.40	2.03	3.34	4.67	4.57	1.28
Aug.	1.37	0.88	0.16	0.95	3.93	4.43	2.50	6.30	3.90	1.40	4.09	1.77	5.34	4.35	0.89	2.66	3.17	4.12	4.70	1.32	2.60	5.63	4.63	2.62	3.01	3.95	2.86	1.07	6.01	3.10
Sept.	1.65	3.84	7.03	2.20	1.47	1.18	2.71	0.79	7.97	3.04	4.45	1.33	1.51	1.92	3.11	2.05	5.41	1.54	3.44	6.34	3.17	2.25	5.01	2.00	4.24	6.40	1.13	9.45	7.16	4.56
Oct.	3.67	3.32	1.60	4.22	1.78	3.60	2.56	2.11	5.23	3.84	6.72	2.26	0.65	3.96	2.71	4.42	3.09	0.53	6.77	1.23	3.46	4.00	5.41	3.54	1.05	1.14	3.55	3.83	2.06	0.95
Nov.	2.22	3.81	1.39	1.72	2.52	4.39	3.20	3.43	3.67	5.51	1.34	1.96	4.30	2.12	2.38	6.38	2.66	6.25	5.04	2.29	8.47	1.55	0.87	1.69	1.78	2.04	3.07	4.67	0.91	2.73
Dec.	1.04	5.20	2.72	2.87	5.27	2.80	3.70	3.66	3.30	4.07	3.12	3.95	1.00	4.04	2.45	3.44	1.57	5.06	2.45	1.49	2.92	8.29	5.45	3.58	1.98	4.62	3.80	3.37	3.31	3.38
Total	26.00	41.55	36.57	34.08	40.60	39.35	37.94	46.27	48.09	38.54	44.50	36.11	35.23	38.20	27.90	40.94	36.35	46.84	46.05	35.27	46.91	47.10	48.32	42.01	36.14	38.61	43.34	42.60	34.07	35.66

TABLE SHOWING MONTHLY RAINFALL FOR 30 YEARS AT AMOSKEAG FALLS, N. H.

This table shows clearly the uncertain character of the rainfall in New England, and a study of the figures furnishes all the necessary evidence to prove the wisdom of the measures being taken at many points to conserve the flow of water in streams utilized for the generation of power for manufacturing purposes. It may be studied also to determine the influence of forest cutting upon the average rainfall, if any. It was compiled from data furnished by the engineers of the Amoskeag Manufacturing company, at Manchester, N. H.

available waterpowers, and to a large extent the means of transportation." And not only, he shows, has Maine the waterpower to drive a vast amount of machinery, either directly or by the generation of electric power, and the facilities by land and water for the transportation of the products, but the raw material is here in large quantities. "It is estimated that the growth of spruce in our forests is furnishing a continuous annual crop of more than 600,000,000 board feet of lumber. . . . The distribution of our granite, ready to be wrought into building material, our clay and sand for the manufacture of brick and tile, is as broad as the boundaries of the State; and although our limestone and slate deposits are less extensive, there is sufficient of these materials within our borders to make them practically inexhaustible."

Respecting the potential powers of the rivers of the other New England states, the official data are not so definite. Sufficient however is furnished by the engineers, and by various prospectors, to show their extent and value in possibilities for profitable and large development.

The Merrimac and the Connecticut, and their tributaries, are of first importance. The Merrimac, the most noted waterpower stream in the world, as Prof. George F. Swain of Harvard University, the first expert historian of the "Waterpower of the Streams of Eastern New England," characterizes it, though most effectively harnessed at its chief points, has yet powers not fully utilized. Formed by the junction of the Pemigewasset and the Winnepesaukee rivers, in the town of Franklin, the former taking its rise in the heart of the White mountains, the latter having its source in Lake Winnepesaukee, the largest sheet of water in New Hampshire, the Merrimac courses 110 miles to the sea, turning on its way a variety of machinery and "more spindles than any other river on the face of the globe." Yet there is room for more. The river drains a total area of about 4916 square miles, of which about 3780 lie in New Hampshire and the remainder in Massachusetts. Its average fall is 2.49 feet per mile, and the greater part of this fall occurring in short distances, at six places, the remarkable powers are

produced for which the Merrimac is renowned. The flow is rendered comparatively constant by the control exercised over natural reservoirs on the upper waters by the great manufacturing and waterpower corporations established downstream at Manchester and below. In its progress through New Hampshire southerly, fifty-six miles, it receives the Contoocook, its largest tributary, the Suncook and the Nashua rivers; while in its run through Massachusetts, after entering which it deflects to the east and continues forty miles to the sea at Newburyport, it takes in the waters of the Concord, the Spicket, the Shawsheen and the Powwow rivers. The fully developed powers lie in the short distance between Manchester, Lowell and Lawrence. The upper powers of most value are in easy reach of Concord. The uppermost utilized is Sewell's falls, below the mouth of the Contoocook, three miles above Concord. Next of importance is Garvin's falls, an excellent power, below Concord and just above the Suncook's mouth. At this place there has been a dam since 1815, first erected in connection with a canal — the "Bow canal" it was called — built around these falls for purposes of navigation. In modern times it was furnishing power for a pulp mill. Next below Garvin's the Hooksett falls, also early partially developed, afford considerable power. The great powers developed to a high state of perfection come next in order a few miles below Hooksett. At Manchester the impressive works erected and controlled by the Amoskeag company are turning the machinery of the massive plant of the Amoskeag Manufacturing company, the Stark mills, paper and other factories, assembled along the canals on both sides of the river. The power at Lowell, next below, the pioneer of the large powers of the country to be systematically brought into use, continues in the front rank with those of first importance. The organization owning and maintaining it, too, is one of the oldest in the country, dating back to the eighteenth century. The "Proprietors of the Locks and Canals on the Merrimac river," chartered in 1792, primarily for purposes of improving the river to render it navigable for boats from tidewater at Lawrence to the New

Hampshire line, before railroads were dreamed of and the expansion of waterways was engaging the wide-visioned captains of industry of that day, as similar projects on a magnificent scale are attracting the captains of this day, was the pioneer corporation taking the first bold step toward the construction of great hydraulic works on New England rivers. Here the pioneer cotton manufacturing corporations instituted by the Appletons, the Jacksons, the Bootts, the Lawrences and other progressive New England merchants, with the rapid and substantial upbuilding of this manufacturing center from its foundation in 1826, have developed in the succeeding years, through prosperity and occasional reverse, modern plants of large capacity and extensive output; while several of them have established or acquired branches, also with great plants, in the South. It is a notable assemblage, this of these pioneers, still holding firm ground in the foremost line. The power at Lawrence is quite as important as those above, and Professor Swain approved it as one of the most carefully managed in the United States. From the top of the Pawtucket dam at Lowell to the top of the Lawrence dam, a distance of twelve miles, the river's fall is about forty-eight feet. The power is controlled by the Essex company, incorporated in 1845, three years before the beginning of this busy manufacturing center, in 1847, which constructed the dam and canals. The great cotton and woolen corporations here, developing with the upgrowing city, also constitute a notable list. Of no small importance as power producers are the Merrimac's tributaries. The Pemigewasset, though with a rapid fall, particularly in its upper parts, from headwaters at elevations of approximating 2000 feet, has a far less amount of waterpower than the Winnepesaukee. The fall of the latter from Winnepesaukee lake to the junction with the Pemigewasset is 225 feet in a distance of fourteen miles. The fall near the mouth, at Franklin's falls, affords a power that compares well with the larger powers of the Merrimac. Other excellent powers which are variously utilized by cotton, woolen, hosiery, yarn, lace and other industries, are at Tilton, Laconia and

Lake Village. The Contoocook, which joins the Merrimac at Fisherville, a few miles north of Concord, having a number of abrupt falls breaking its declivity, presents a considerable amount of available power, which is utilized in part in various towns along the stream, notably by paper mills and cotton and other factories. The Nashua, entering at Nashua, comes down from Massachusetts, from two branches, the north and the south branch, having their fountains in Worcester county, turning on its way considerable machinery in various mills. Both branches are excellent streams for waterpower, and are fairly utilized. Fitchburg is the larger user on the north branch, and Clinton on the south branch. The greatest power is at the mouth of the river at Nashua close to the Merrimac. A few miles above are good privileges. At Pepperell the power is utilized by the mills of a paper company. The Concord river, entering at Lowell, has its most important power within about two miles of its mouth. The Spicket, emptying at Lawrence, is called a good stream for power. The Shawsheen's principal powers are at Ballardvale and Andover; the Powwow's, at Amesbury and Salisbury.

The Connecticut, the largest and noblest of the rivers of New England, coursing between New Hampshire and Vermont and across Massachusetts and Connecticut, 350 miles from its sources in the high land on the Northern United States-Canada line to the sea at Long Island sound, with many a fall and succession of rapids, is rich in waterpower, yet only partially utilized, although at a few points the river is superbly harnessed. With its source in a succession of mountain lakes, its total drainage area is 11,085 square miles, of which 155 lie in the province of Quebec. For the greater part of the river's luxurious progress from the north between New Hampshire and Vermont, midst scenic charms surpassing those of all other New England rivers, it contains numerous rapids and abrupt pitches; then after passing Bellows falls its general descent becomes slower, broken by falls or rapids at only a few places about and below the upper Massachusetts line. The principal powers now utilized are at

Olcott's falls, or Wilders, a Vermont village about three miles above White River Junction; at Sumner's or Quechee falls, seven miles below White River Junction; Bellows Falls, thirty miles farther down; at a great dam newly erected for electric works between South Vernon and Hinsdale; at Turner's Falls and Holyoke, and at Windsor Locks. Others, and rich ones in possibilities, remain yet undeveloped. The river is first harnessed in a small way far up by its sources. At the outlet of both the First and Second lakes in the highlands are dams, utilized mainly for purposes of log-driving. Lumbering is yet one of the most important interests on the river, the timber being cut about the extensive upper waters. The Connecticut lakes and the three west-side waterways are the chief reservoirs for the masses of logs harvested west of the lakes which go down in the annual "drives" to the various lumber and paper mills along the river's length. A considerable part of the annual drive is sawed at McIndoe's falls, a pitch at Barnet, Vermont, finishing the long stretch of rapids known as the Fifteen-Miles falls; the remainder is distributed among different mills as far south as Hartford. Below the lakes the next power is at Beecher's falls in Canaan, on the Vermont-Canada bound, and West Stewartstown, New Hampshire, opposite. Below West Stewartstown in the long, graceful and placid fall to Lancaster, New Hampshire, and Lunenburg, Vermont, are dams here and there utilized by electric plants supplying the country towns and villages with light and power. At Lancaster waterpowers are utilized on Israel's river which here empties into the Connecticut. Below Lancaster, at a great eddy in a bend of the river at Dalton, the Fifteen-Miles falls begin. About a mile below McIndoe's falls the Passumpsic, coming down from the Vermont hills, enters the stream. From this point the river's flow down to the Massachusetts line, a direct distance of 137 miles is an average descent of two feet to the mile. At Brunswick, Vermont side, the Nulhegan river enters; at Northumberland, New Hampshire side, the Upper Ammonoosuc; at Barnet, Vermont, the Passumpsic; at Woodsville, New Hampshire, the Lower Ammonoosuc; from the

Vermont side, Wells river, nearly opposite the lower Ammonoosuc; at Bradford, Vermont, Waits river; above Norwich, Vermont, the Ompomponoosuc; at White River Junction, the White, the largest stream in Vermont on the east side of the Green mountains; at Lebanon, New Hampshire, the Mascomy, and the Quechee at North Hartland, Vermont, both contributing to the Quechee or Sumner's falls; at Claremont, New Hampshire, the Sugar river, an especially important mill stream; at Springfield, Vermont, the Black, another important one; at Rockingham, Vermont, next above Bellows Falls, the Williams river; from Westminster, Vermont, next below Bellows Falls, Saxton's river; immediately above Brattleboro, Vermont, West river; at Hinsdale, New Hampshire, the Ashuelot, entering with a royal sweep — all important tributaries, and all with good waterpower utilized and potential. The Fifteen-Miles falls constitute one of the greatest of the potential sources of power on the upper river. Thus far they have been utilized only at the McIndoe's and to a comparatively slight extent at a single point toward their upper part. A great project however was developed in 1910 to harness them at the now decadent but once quite prosperous little Vermont town of Lower Waterford, and lift the river's level back to their head for the establishment of a great electric plant to distribute power for manufacturing and other purposes to a wide extent of country. The power at Wilder's is utilized by pulp and paper mills. That at Sumner's falls is partially developed. Claremont, at the mouth of Sugar river and Springfield at the mouth of the Black, are notable manufacturing centers, utilizing considerable amounts of power in the manufacture of machinery and paper. Bellows Falls is largely utilized. Here the valley is enclosed by steep hills and the river descends abruptly over a series of ledges and rushes through a narrow gorge hemmed in by high walls of rock. At the foot of the gorge, finishing in a great eddy, it spreads out again in smooth water and resumes its tranquil aspect. The dam here extends across the head of the rapids, and thence a canal carries the water down to the foot of the falls where the mills are located. These

are for the greater part paper mills. Other products include agricultural implements. Below Brattleboro and just above the Massachusetts line, the river is most effectively harnessed with the newly erected electrical works of grand proportions completed in 1910, for furnishing light and power within a radius of sixty miles. The great concrete dam thrown across the river between Vernon and Hinsdale, 650 feet long and thirty-four feet high above average low water, ponds back a length of twenty-two miles and a width varying from 600 to 4000, making available some 25,000 horsepower. Ten large flood gates, ten feet by seven feet, capable of discharging 25,000 cubic feet of water, penetrate the great dam for use in regulating the level of the pond it creates, and in time of floods to prevent damage upstream. The work has raised the original river level back at Brattleboro about fifteen feet, and rapids two miles above Brattleboro have been transformed into still water. On the upper four feet of the twenty-two-mile pond, or reservoir, as stated by Lauriston Ballard in "The World's Work" the storage has been computed to be 250,000,000 cubic feet. The powers of the Massachusetts reach — at Turner's Falls and at Holyoke — are utilized to their full capacity. From the crest of the Turner's Falls dam to the crest of the Holyoke dam the river's fall is 75.25 feet. Of the Holyoke power Dwight Porter's estimate of a quarter of a century ago (in the United States Census water-power reports, 1885) holds good today — ".a splendid water-power admirably developed and enjoying a thoroughness and scientific method of management that are probably nowhere surpassed." Now as then the great bulk of the water is used by paper mills, and Holyoke retains as then unchallenged the sobriquet of the "Paper City," the chief center for the manufacture of paper in the United States. Yet although the fine paper-making concerns outnumber any other single class of manufacture here, cotton manufacture with which Holyoke began its prosperous career as a separate town, in 1850, continues to hold its own. The enterprises of the Perkinses, the Lymans, the Dwights, names so conspicuously associated with New England manufacturing in the nineteen

forties and fifties, with the organization of the Hadley Falls company, and the development of the waterpower of Hadley falls, continue perfected in the hands of their successors: the Holyoke Water Power company, and the great Lyman and Hadley mills. The present dam is a most modern twentieth century affair erected in 1904. On most of the tributaries entering the river in the Massachusetts reach various and diversified industries are now also actively carried on, with the development of many waterpowers; yet, as elsewhere, all are not fully utilized. These tributaries enter from the upper Massachusetts bound in this order: Miller's river, emptying at the town of Gill; Fall's river, at Greenfield; the Deerfield, at Deerfield, along with the Green from Greenfield which it receives at its mouth; Mill river, at Northampton; the Chicopee with its branches, the Swift, the Ware and the Quaboag, just above Chicopee; another Mill river, at Springfield; the Westfield, or Agawam, at West Springfield. On the Deerfield another enterprise of bold proportions for the utilization of the splendid power of its upper waters is underway this present year (1910) with promise of immediate development in accordance with the engineers' plans. This large project, the conception of the same engineers, Messrs. Chase and Harriman, who have created the great electric power producing and distributing works at Vernon-Hinsdale, involves the erection of similar works at the railroad village of Zoar, the second station east of the Hoosac tunnel, ultimately to be handled in connection with the Vernon-Hinsdale plant and the proposed other Connecticut river establishment on the Fifteen-Miles falls. The broadly planned scheme embraces the erection of a dam at Davis bridge, a high point in the Vermont part of the Deerfield, which will impound water lying 1400 feet above sea-level, and the building of a contour flume thence to the works at Zoar, which lie some 600 feet above the sea. There will be developed some 25,000 horsepower for distribution to railroads, factories and other patrons. Of the waterpowers of the other Massachusetts tributaries the Chicopee and its branches are the most fully developed. At Windsor locks, the one point

in the river's passage through Connecticut to its finish at the the sound where power is systematically utilized, the development is as complete in its way as at larger points above; and the power here is busily employed by substantial paper mills, silk mills and other factories. The powers of the larger tributaries entering in the reach, too, are well utilized: those on the Farmington, or Tunix, the principal tributary in this state, joining at old Windsor, to the largest extent. The others of note are the Scantic, entering at East Windsor; the Podunk at South Windsor; the Sabethe at Middletown; the Salmon at East Haddam.

Of all the large power-producing rivers of New England the Blackstone is the one stream loaded closest to its full capacity. It has been called the "best harnessed river in the United States"; and it is the busiest, with its more than a hundred mills lining its short course of less than fifty miles and its tributaries. Yet, as Winthrop Packard has pointed out, it is today so poorly harnessed that a vast bulk of its energy goes to waste.

Wrote Professor Swain at the conclusion of his survey of the waterpowers of the United States, considering all the conditions: "It must be allowed that on the Atlantic slope the streams of New England are in all respects the most favorable for waterpower"; and the array of favorable circumstances "may well entitle New England to the first rank as a waterpower district." Says another authority: "In respect to its richness in waterpowers developed and potential and its adaptability to long-distance transmission of electricity as a motive power for communities and transportation lines far removed from the initial sources of energy, New England ranks high among the various sections of the country." These are conservative statements of our six New England states. In fact, they are unsurpassed.

New England Agriculture

Opportunity awaits the man who engages in agriculture in New England. This is true of the farmer already here, who should henceforth widen his horizon and enlarge his occupation of the field. It is also true of the man west or south of New England with inquiring eyes turned in this direction. The first named, thus far, with some notable exceptions, has not wholly lived up to his opportunities. The second, very properly asks to be "shown."

New England agriculture for various reasons is worth while in every sense of the term; it still has an abundance of relatively cheap and fertile lands, making it possible to successfully undertake farming without heavy outlay of capital; it has nearness to the best cash markets in the world; its farm products bring high prices; it shows a practically unlimited outlet right at home for more than New England can produce; rates of freight to markets are especially low compared with the long hauls further west, though not yet as low as they should be, in some instances.

As a side-light on this general summary, here is an incident which actually took place, in the autumn of 1910, on the occasion of a field meeting of the Connecticut fruit growers. Extensive orchards in profitable bearing were in the foreground, fruit being harvested; quick, nearby markets assured short haul and high prices. Among the visitors was a representative of the famous Hood River, Oregon, fruit section. He acknowledged the impressiveness of the attractive money-making proposition spread out before him on that Connecticut hillside. Turning to J. H. Hale, the peach king of Connecticut and Georgia, the Oregon man asked where could be found similar splendid opportunities to buy orchard sites. "There, directly across the road," came the quick positive response of Mr. Hale; "and over yonder is another just as

good. And more and more of these splendid orchard sites all the way up through Connecticut and western Massachusetts; and, in fact, through most of the distance still further north to the Canadian line."

AREA OF THE SIX NEW ENGLAND STATES

In Square Miles

	Total	Land	Water
Maine	33,040	29,895	3,145
New Hampshire	9,341	9,031	310
Vermont	9,564	9,124	440
Massachusetts	8,266	8,039	227
Connecticut	4,965	4,820	145
Rhode Island	1,248	1,067	181
Total	66,424	61,976	4,448

For so many decades of years has agriculture been prominent in New England that it may seem unnecessary to give much attention here to its topography, its physical characteristics, its rainfall and its climate. Yet it is not amiss to remind the reader that in these things New England has much which is really advantageous for the pursuit of farming.

As latitudes go, New England is fairly well to the north. Yet, a glance at the map will show it, in this respect, fully as favorably located as many other portions of the country which are given over to crop production. In fact, the matter of a northerly latitude has long since proved its real worth in the turning out of fruits, vegetables, cereals, and grass crops of the highest order.

Within a comparatively short time, scientists, making a special study of cereal culture, have presented strong arguments to show that such small grains as wheat, rye, and oats make a heavier rate of yield to the acre in northerly latitudes than further south. The heavy rate of yield of wheat in England is somewhere around thirty-three bushels to an acre, and nearly as much in northern France and in the Netherlands, against our own average in the United States of only fourteen to sixteen bushels. For that matter, it is not necessary to cross the Atlantic ocean to find positive evidences of what may

be accomplished in northern latitudes. In western Canada, four hundred miles north of the international boundary line, magnificent crops of wheat and oats are now grown. The Canadian wheat crop of 1910 alone was something like one hundred million bushels. Going still further north in the western hemisphere wheat is produced each season in the Peace River valley at a latitude of 58 degrees, whereas the northernmost point of Maine is only 48 degrees.

AREA IN NEW ENGLAND UNDER FARMS

	Number of farms	Total acres	Average no. acres to farm	Percent improved
Maine	59,299	6,299,946	106.2	37.9
New Hampshire	29,324	3,609,864	123.1	29.8
Vermont	33,104	4,724,440	142.7	45.0
Massachusetts	37,715	3,147,064	83.4	41.1
Connecticut	26,948	2,312,083	85.8	46.0
Rhode Island	5,498	455,602	82.9	41.1
United States	...	...	146.2	49.4

Keeping away from technicalities in a plain statement of agricultural conditions in New England, it will suffice to remind the reader that in this moderately high latitude, as well as those still further north, the sun gets in its work very early in the day, during practically all of the growing season, and continues until a late hour in the afternoon. Thus a field of grain, or cultivated crop, or small fruit, receives during the growing season in each day of clear sky a maximum of sunshine, forcing nature in its work of development, maturity, and full fruition.

President Butterfield's Opinion

The condition and prospects of agriculture in New England are thus conservatively summarized by President Kenyon L. Butterfield of the Massachusetts Agricultural College:

"I came to New England eight years ago. I soon formed a very optimistic belief in regard to the future of agriculture in New England, and that belief has strengthened with the years.

"Of course, there are difficulties, drawbacks, problems.

For one thing, we have to admit the spotted character of the land. There is no great area of uniformly rich soil. The soil on a given farm is often of many different types. A single town may have good and poor land. This fact makes it difficult to localize a given crop and bring to the community a great reputation for a specialty.

"All over the north at least farm labor is scarce, but perhaps New England farmers suffer more than any others because of the presence of the large number of mill villages which tempt farm boys and girls from the surrounding regions to steady positions, even at small wages, in exchange for what have seemed to be the uncertainties of the farm.

"Farmers everywhere have failed to coöperate, but perhaps the failure is more marked in New England than anywhere else. The New England farmer likes to 'paddle his own canoe.' Of course, individual farmers of superior intelligence make more profit in this way than they perhaps would by coöperating, but agriculture as a whole is put to a great disadvantage. The individual method of marketing, for instance, is a very costly one. This might not matter so much to the farmer if the consumer paid all the costs of marketing, but unfortunately he does not. A clumsy system of marketing robs the farmer of some of his profit.

"Although New England has a small area, and is interlaced with a network of steam and trolley roads, nevertheless the facilities for cheap transportation of farm products to the nearby markets are not as good as one might expect. It costs more for the average New England farmer to get his goods to his market than it ought to cost, and this fact makes the competition with the western and southern growers more serious than would otherwise be the case.

"But these difficulties simply mean problems to be solved. They are not insuperable difficulties. On the other hand, there are positive and real advantages possessed by the New England farmers. The first is the *market*. It is a big market. It consists not only of the great city of Boston but of many minor cities and villages, altogether making a large consuming population within restricted area. The market is near the

A FIELD OF BOSTON LETTUCE

average farmer. It is a growing market. Nearly all the New England cities have shown a tendency toward growth during the last ten years. It is a high grade market, calling for products of quality. It is a sympathetic market; that is to say, if the proper steps are taken the New England consumers will express a preference for New England grown products.

" It is sometimes asserted that the soil of New England is a drawback. On the contrary, it is an asset. True, there are many square miles in New England consisting of ledges, others almost plastered with boulders; but wherever there is clear soil it is good soil — the very best. There are areas that are worn, because they have been over-cropped and mismanaged, but all the New England soils respond bounteously to proper treatment.

" There are some special advantages. The rainfall in New England is abundant, and well distributed, as a rule, throughout the growing season. This is shown in the marvelous tree growths. Forestry therefore can be made a permanent agricultural sub-industry. Fruit trees grow vigorously also.

" And then there is the fruit *flavor*. It may be soil, it may be climate, it may be the altitude of some of the hills; but no matter what it is, there are few spots on earth where apples particularly take on a better flavor than in New England. This is an asset of tremendous importance.

" The grass-growing areas in New England are unsurpassed for native power in producing good hay. Even the hillside pastures are of superior quality. The Lord intended that in New England there should be ' cattle on a thousand hills,' and it is only man's fault that there are not. We might add sheep, too, to the same category, if it were not for the curse of curs.

" The fact of greatest promise is that we are undergoing a great awakening in New England agriculture. Farmers have a new look of hope. Business men are particularly interested. Leaders in community life are interesting themselves in the country problem. All New England is stirring as perhaps never before in all its history, with things agricultural."

The General Outlook

This brief summary by President Butterfield expresses the most conservative views. A permanent and gratifying success should, in the years to come even more than ever before, attend farming in New England. This is true of the men and women living here and engaged in some phase of agriculture. It is also true of those outside the confines of the six states, who may be impelled through the authenticated records to cast their lot in New England. Farmers now engaged in this pursuit will remain here. Not in many years have they been so well satisfied with agriculture in New England as today — in the ledger account, the cash box, the home life, and social opportunities.

Farmers not now in New England, but who are considering the advisability of coming here, will have read this book in vain if they do not adequately grasp the facts portrayed. In the briefest sort of way, attention is called to these advantages: Relative cheapness of good farming lands; productivity of soil and ease in working it when properly handled; profits in various staple crops and New England specialties; good roads; nearness to the best and highest cash markets in the world; a network of rural free delivery routes, and passenger, freight, and express trolley lines, and telephones; the best schools, colleges, and libraries in the world; freedom from the isolation of the less settled communities; social life of a high character and atmosphere; environment conducive to the best things in the home life. As to financial returns, no section of the country can show better results, considering the risk. New England lands are notably moderate to low in price. They will produce the best and biggest crops, and the markets are right at the farmer's door. However poor in purse a man may be, if he has grit, ambition, and real purpose, he cannot fail to succeed in New England.

Land values in the agricultural sections have shown a positive hardening tendency during recent years. Not very long ago a personal investigation was made throughout various

New England states, among farmers, real estate men, and bankers, with a view of determining just what had been the trend of values during, say, a five- or ten-year period. This proved the statement of an appreciation in prices of farm lands. Reference is made entirely to lands intended for farm operations, distinct from those having a present or prospective " town lot " value. Land cannot be quoted by any hard or fast rule in the same sense as can No. 1 hard wheat, or packing hogs, or pig iron, or municipal bonds, which have a fluctuating value from day to day, but the drift of testimony from farmers and the record of sales show a firmer tone in the sale price of agricultural lands in New England.

Farm lands command a wide range of prices. It is safe to say that in some of the hill towns, where there are great stretches of rough land, with here and there a bit of tillable soil, purchases may be made at the remarkably low price of $10 per acre, or less. But in such instances the land is not well suited to cultivated crops, or even to meadows, and may be remote from a railroad. Such areas have attraction in the way of grazing sheep and goats, or fattening cattle. In the plains or uplands are great stretches of gravel loam land that are well suited, under proper handling, to many crops. Such land can be bought at medium prices. The rich valleys and river bottoms found in many parts of New England are especially well adapted to growing onions, early potatoes, celery, asparagus, and other truck crops; also strawberries, roses, vegetables, etc. Such land, found in the Connecticut valley, from the lower confines of Vermont and New Hampshire down through Massachusetts and Connecticut nearly to Long Island sound, is held at high figures where particularly well located, with soil deep and rich, and well calculated to produce to perfection some of these special crops. This is also true of the market garden sections, five to twenty miles out of Boston, Worcester, Springfield, Hartford, Manchester, Portland, etc. Such soils, while heavy and often very black, are not sticky, even after smart rainfall, and are readily worked. The price for land of this character runs high; all the way upward from $400 to $500 an acre. Good potato land in northern Maine is

worth around $100 an acre, and not infrequently rents by the season at $10 and upward an acre. Near the large cities desirable land for truck farming sells as high as $1000 an acre, and gardeners are able to pay that price and coin big money. Two and three crops are raised on the same land each year. These specialties include the general line of vegetables, such as spinach, lettuce, radishes, cabbage, cauliflower, sweet corn, tomatoes, celery, etc.

Agricultural education is receiving attention in several ways in New England. There are the agricultural colleges and the experiment stations, the boards of agriculture, the grange, dairying, and horticultural societies, bee keepers and sheep breeders associations, the press, and latterly, commercial organizations and corporations such as boards of trade and the railroads. Each of the New England states has a state agricultural college and experiment station; Connecticut has two of the latter, one at Storrs and another at New Haven. Maine's college and experiment station is in connection with the state university at Orono; Vermont's in connection with the Vermont university at Burlington. The New Hampshire college and experiment station are at Durham; Massachusetts at Amherst; Rhode Island at Kingston. Various eastern institutions in later years have awakened to the fact that it is not sufficient to teach the boys and girls at the institution, and to dig out certain facts connected with agriculture. Important as are these, the institutions must go further and do something for the farmers who have not the time, nor perhaps the finances, to take college courses. They have learned that it is one thing to experiment and quite another to get the results in actual operation on the farms. Therefore the colleges and experiment stations are featuring what they term "extension work." The facts learned at the college are taken direct to the farmers and applied to the everyday problems of the farm. Demonstrations and object lessons are given of approved methods of caring for orchards, live stock, crops, etc. Men in close touch with both the college and the rural end of the proposition devote their entire time to getting the farmer and the institution in this closer relation. The purpose is to dis-

seminate some of the useful information which in the past has been allowed to lie in pigeon holes until it finally reached the backyard fire dump. In close sympathy with this same spirit of practical results are found the grange, the boards of agriculture, and other organizations, aiming to dignify and uplift agriculture.

While coöperation has not gained the foothold in the East that it has in portions of the South and West, New England farmers are rapidly adopting the decisive advantages offered through associated effort. Net returns to New England farmers have been reasonably satisfactory, and in consequence they have not been forced into coöperation as in other sections. But they see what fruit and vegetable growers are doing in other localities through associated effort and are going after the same proposition. One proof of this is the work being accomplished by milk producers shipping to the Boston market. Back in 1899 the price of milk was 33 cents per 8½ quart can delivered at Boston. In the winter of 1909–10 the price was 44½ cents for the same quantity, which is a difference of 11½ cents in favor of the farmer's pocketbook. For the amount of milk sold in Boston this approximates about $1,500,000 additional for farmers. While prices have advanced somewhat owing to natural causes, the saving is largely due to the determined fight of the farmers' milk union.

Farming Opportunity

The business of farming has witnessed many changes in New England since the early days, and the experiences of farm folk have covered a wide range. For several generations, when the country was young, agriculture was the chief industry in New England, and a little later equal with manufactures. Eventually came a lull in the development of agriculture, coincident with the opening of vast prairie stretches from Ohio westward to the Mississippi river, and beyond. The fascination of the new country caught the fancy of many a sturdy youth and bronzed farmer; with the result that great numbers turned their faces toward the setting sun. Then came

A COMMERCIAL APPLE ORCHARD IN NORTHERN VERMONT

the two decades of years following the close of the Civil War, when agriculture in New England was at a comparatively low ebb. But this westward trend was not to continue uninterrupted. With the early '90's the fact was borne into thoughtful minds, as had not been the case for generations, that

OCTOBER PRICES

WHOLESALE PRICES AT BOSTON STANDARD GRADES COMPARED WITH OTHER DISTRIBUTING CENTERS

	Boston	New York	Chicago	St. Louis
Creamery butter per lb.	31½c.	31c.	29c.	31½c.
Cheese per lb.	17c.	17c.	16c.	17c.
Timothy hay per ton	$24	$22	$20	$18
Apples per bbl.	$4	$4	$3.50	$4.25
Yellow corn per bu.	68½c.	66c.	55c.	57c.
White oats per bu.	42½c.	38c.	35c.	35c.
Eggs per doz.	32c.	28c.	23c.	22c.
Live fowls per lb.	18c.	17c.	14c.	12½c.
Onions per bu.	65c.	50c.	45c.	45c.

agriculture in New England might be made particularly forceful and effective, in the production of crops and feed products, with profit to the farmer, in comfort and uplift in the social and home life of the farmer's family. The swing of the pendulum which had been outward was now inward. The tide, which some of the friends of New England feared was an ebbing one, became a flowing tide. Individuals and farm communities, which at one time had become less courageous, caught their second wind, and came to a realizing sense that opportunities were within their grasp, and, best of all, right at home. Nor was this keener appreciation of environment and opportunities confined wholly to plain everyday farmers. Specialists who had foresight to discern a profitable field in various branches of agriculture, such as peach growing, apple orcharding, and poultry production, bought up farms or increased their holdings, enlarged their plans and accentuated their energies. Furthermore, an increasing number of city residents, both in and out of New England, recognized "the growing pains" and gave utterance to their longing to acquire a home for all or part of the year in the quiet valleys, on pleasant plains, or glistening hilltops. Not that there was any frenzy or appropriation of agricultural lands perhaps in

many instances ill-timed, as that would not have been a healthy development. On the contrary, the movement looking toward appropriations and opportunities in New England agriculture have been gradual, yet persistent and readily discernible in recent years. To one who has made a careful study of the situation for a long time, and is therefore well equipped to draw deductions, it may be said without slightest fear of effective contradiction that farming in these six states has in recent years undergone a decided change for the better, in hopefulness, in endeavor, in uplift, in real tangible accomplishments. In agriculture, as in other directions, New England has taken on a most optimistic spirit, highly gratifying to all, with further widening hopes and plans.

In the present work-a-day world, agriculture in New England naturally divides itself into two classes. One of these includes the standbys of passing years — the general crops, such as hay, potatoes, corn, the development of meadow lands, dairying; the other, special crops, such as apples, onions, tobacco, small fruits, cranberries, lettuce, garden truck, gardening under glass, rose culture, etc. The principles of agriculture pertain here, as elsewhere, and scientific methods are as keenly followed as in any state in the Union. Every commonwealth has its agricultural college and experiment station. Every state has its agricultural department. These various energies are active in the carrying on of farmers' institutes, of the better farming trains, of encouragement to local and state organizations, relating specifically to dairying, to horticulture, to breeding and feeding live stock, etc. Under such benign influences, together with the ever-forceful aid of the agricultural press, how could it be otherwise than that the farmers of New England should follow approved methods and bring forth yields sixty and a hundred fold?

The question of farm labor very properly comes to the front in contemplating the farm proposition, whether in or out of New England. It is a problem everywhere. All are familiar with the newspaper yarns about the frenzied Kansas farmers at harvest time rounding up with a shotgun all available " timber " for work in the wheat field. Nor is this entirely

a fairy tale. The problem is one which must be carefully handled everywhere. In this respect New England is possibly better off than some other parts of the country. The cities and large towns are liable to have an excess of labor, and with well-distributed trolley systems it is not wholly difficult to get farm laborers to go into the country. This is especially true where the farmer uses good judgment, tact, and kindness in the treatment of farm hands. What is true of this economic proposition in New England is true of it elsewhere; that the time may be approaching when the farmers will find it necessary, practicable, and satisfactory to deal with the farm help — as is the case with the industrial world — in a spirit of fairness, exact a reasonable day's labor for a day's wage, and thus elevate the farm labor question to the same plane it occupies in factory, shop, and mill. The introduction of a generous use of labor-saving farm machinery and farm devices has done much in New England to solve the labor question. Tobacco and cabbage plants are set by machinery, spray pumps are operated by compressed air or gasoline engines, the hydraulic ram and the windmill pump the water for both barn and house; the silage cutter, the blower, the bone cutter, and the feed mill are operated by compact and inexpensive power plants. Horse-propelled machinery spreads the fertilizers and the lime, drills the seed, plants and digs the potatoes. Thus the labor question is not an insurmountable one to the business farmer; and, after all, it is the business farmer who gets along, in the same sense that does the business tradesman, the business artisan, or the business manufacturer.

The grange in New England is nearly 200,000 strong. In each state there are coöperative stores or associations saving farmers hundreds of dollars. For instance, Houlton, Me., grange for the six months ending June 11, 1909, did a business of $164,974. Of this amount about $10,000 was for flour, $5000 for sugar, and $11,000 for grass seed. This grange owns its own blacksmith shop, flour and grist mill, livery stable, etc. The Massachusetts state grange has a coöperative association, and from January to August handled 100 cars of grain, 15 cars of flour, 800 tons of chemicals; which figured

out about $4000 saved to members on fertilizers, $3000 on flour, and $4000 on grain. The grange has coöperative fire insurance companies; the New Hampshire organizations having something like $6,000,000 outstanding insurance, Massachusetts, $3,000,000, Maine, $2,000,000, and Rhode Island and Vermont smaller sums. Both coöperative buying and selling are under consideration by the grangers and farmers in general. In many localities a group of neighbors, not members of the grange, combine and order a car of grain for their stock. Coöperative cow-testing associations and breeders associations are rapidly being formed. Maine has eight of the former and four of the latter. Plans are on foot for a big commercial fruit growers organization in Maine which will do business along the lines featured in Hood River valley and in other famous far western apple territories.

No section of the country has better facilities for organizing coöperative work than New England. The grange, a farmers' organization, is the natural avenue through which this can be launched, and in no place in the world are there so many granges as in the East. New Hampshire actually has more granges than there are towns in the State. This is accounted for by there being five or six lodges in some of the larger towns. It is difficult for a farmer to find a farm in New England which is not reasonably near some grange, so well is the territory organized along grange lines. While some of these local lodges are city granges, so-called, catering more especially to the social and entertainment features, the majority are true farmers organizations.

The New England States

Maine is well watered with innumerable lakes and ponds, while the rivers and small streams do much to conserve the interests of the valleys and fertile fields. The northern counties in the State have a comparatively short season for crop growing, yet the energy of the sun, combined with generous rainfall, makes that territory, particularly Aroostook county, famous for its crops. Alluvial plains of remarkable fertility

are found throughout much of the State, which show evidences of having been at one time bottoms of old lakes long since dried up or drained out. While much of Maine is rugged and broken by high hills and ranges of mountains, there still remain large areas of cultivated land, some of which in recent years has been brought up to a high state of fertility. In this respect Maine is identified with " extensive agriculture " more peculiarly than other eastern states. To the man with a wide horizon who has made a study of agriculture east and west, farming in Maine is easily comparable, even though on somewhat smaller scale, to conditions in the Middle West. The Aroostook in the northeastern part of the State comprises probably the largest area given over to fertile farming land in New England. The State, agriculturally speaking, devotes most attention to such crops as grass, potatoes, apples, all of these being very successfully produced on a large scale. Cereal culture has not been accorded very much attention, although within the past ten years some notable successes have been made in wheat, oats, and rye, with the tendency for still further attainment. In such specialties as potatoes and apples the very best agriculture is followed. Hay and forage crops are given much attention and the yield is very heavy. Maine is each year becoming more of a dairy state, requiring enormous amounts of feed of this character. While stock raising is carried on in a somewhat limited manner, interest and the best thought of agriculture in northern New England favor going more and more into breeding and feeding meat animals, in dairying, and in the production of horses.

While the Granite State can boast of the highest mountain in the eastern part of United States, it also has many fertile plateaus and delightful valleys. Nor are all of these given over to summer homes. In the growing season precipitation is usually ample for the production of crops. In fact, a noteworthy thing about all of New England is its general freedom from serious drought. To the man born and reared in New England, such things as " hot winds," the " firing of corn," and ruin of crops by reason of continued high temperatures and absence of rainfall is practically unknown. The State is

Mr. J. H. HALE AND ONE OF HIS APPLE TREES AT SEYMOUR, CONN.

well drained by numerous streams of water. In passing, it is not amiss to mention the considerable wealth of forests found in the upper half of the State. As to crops, hay is a leader, with the dairy industry prominent, while increasing attention is being given to apples. If New Hampshire is growing less in the way of cereals than years ago it is because its farmers find it more profitable to use the land in some other way, buying needed feed stuffs and grain. In recent years enlarged attention has been given to the growing of silage corn, which is now considered a requisite in the well established dairy. The potato crop is also an important one in New Hampshire, while small fruits and truck farming are given much attention.

Bounded on the east by the Connecticut valley and the stream which gives this its name, and on the west by Lake Champlain, Vermont is a land of hills, mountains, fields, and meadows. A healthful and bracing climate adds to its attractiveness. It has a reasonable amount of heat and cold. In the valleys, especially in the western portion of the State, there is much land which is well adapted to the production of crops, and agriculture has always constituted the leading industry. Under the influence of intelligent farming the rate of yield to the acre is high. While the '80s and early '90s found many Vermont farmers turning their faces toward the cheap lands in the West, a better feeling has prevailed in recent years, with an appreciable uplift in agricultural conditions. As to crops, hay is the leader, while liberal quantities of oats and potatoes are grown, with an important output each season of barley, buckwheat, and maple sugar. Vermont seems particularly adapted to apples and plums, the fruit showing high color, good flavor, and quality.

While the river valleys with very heavy soils are usually considered more attractive in point of producing capacity, Massachusetts has many evidences of agricultural prosperity in its higher plateaus and hill towns. West of the Connecticut river, which cuts the State squarely in two from north to south, Massachusetts is much broken, yet agriculture is forceful, even in such elevated areas and narrow confines as some of the valleys hedged in by the Berkshire hills. Eastward from

the Connecticut river the topography of the State is more gently marked by low hills and great stretches of plains, sloping gradually to the sea-coast, and elevation entirely disappearing in the famous cranberry bogs and sandy beaches of Barnstable and Plymouth counties. As to climate, it is in the middle of the north temperate zone, temperatures showing a fairly wide range. Yet the frost period from December to March is not severe upon orchards and other crops, while the growing season is favored by generally sufficient and well distributed rainfall. This, with the genial sunshine and higher temperature of mid-summer, force to the greatest perfection the crops for which Massachusetts is famous, such as corn, cigar-leaf tobacco, apples, and small fruits, onions, potatoes, etc. Massachusetts has a larger population than any other New England state, and the proportion of the people actually engaged in agriculture is relatively small. Such portions as are not adapted to agriculture are receiving attention on the part of the farmers and others who are interested in forestry.

In the development along agricultural lines in the last decade of years Connecticut might properly be called "the land of the rosy peach;" for this great commercial crop has become one of the fascinating features of Connecticut agriculture, and the State now takes second place to no other as a producer of this fruit. As in other parts of New England, grass is the leading crop. Hay, ever and always, in this part of the country, commands very high prices. The farm value of hay, according to official figures, is higher in Connecticut than in any other state, being placed at $19.30 per ton. The valley land of the Connecticut is particularly well suited to extensive farming, and some remarkable yields have been made in grasses, in tobacco, and in corn. The rougher portions of the State further east afford great possibilities in grazing at a low cost. Owing to the fact of many large manufacturing centers, the home markets for fruit, truck, dairy products, poultry, and eggs are large.

Small in size but big in accomplishment, Rhode Island is more than a great industrial center, or a political ganglion. While part of its area is rather rough land, even that is well

adapted to pastures and dairying. In the truck sections, close to tidewater, splendid crops of potatoes and other vegetables are produced. There are several notable apple orchards, and many examples of the most advanced farming ideas. In the eastern part of the State the poultry industry has been developed to a high state of perfection.

New England Crops

It is difficult to say just what is the most important of the special crops which succeed abundantly in New England. Several of them stand out prominently, including cigar-leaf tobacco, apples, and onions. The potato might very properly be classed as a specialty, certainly in a few counties, although it is grown generally. Cranberries form a highly specialized crop in a few sections; so with sweet corn for canning purposes, asparagus, lettuce, strawberries, etc. Corn is being revived as a profitable crop, and oats are more generally grown for feeding whole and for ripening and threshing. Alfalfa may soon be a leading New England crop. Hay is being more carefully grown, the average crop having been in many instances doubled or quadrupled. Maine-grown sweet corn commands a higher price than corn grown anywhere else in the United States. Poultry farming is one of the highly specialized and successful industries. The home markets greedily appropriate all that can be produced at the highest prices to be found anywhere, and, like Oliver Twist, plead for more. New England is preeminently adapted to apple production. Soils, elevation, climate, etc., are exactly what the apple demands, abundant proof of which are the thousands of apple trees in good health on the many hillsides, some of them being 50 to 100 years old. Fertilization, cultivation, and spraying will give a New England fruit practically as near to perfection as can be obtained in the world. Markets are, figuratively, in the New England fruit growers' front yards. Within the past two years there is abundant evidence that these possibilities are beginning to make an impression; the New England apple industry has made greater progress within that time than during any

decade preceding. Peaches are proving very profitable where conditions are right, though requiring more skill and care than other crops. The ability of the soil to produce the best of yields of highest quality fruit, and the dense population of New England affording a quick market, provide extra inducements for growers of small fruits. Raspberries, blackberries, strawberries, grapes, currants, gooseberries, cranberries, dewberries, and huckleberries are produced at their best in New England. Cherries, plums, and pears always succeed where given a square deal. Adjacent to a few of the large towns where conditions are particularly favorable, roses are being largely grown for market, mostly under glass. In limited areas in Rhode Island and eastern Massachusetts some farmers make a specialty of growing seeds for seedsmen.

Among the interesting and profitable crops measuring up to the dignity of a specialty in a dozen states, onions command the attention of many farmers. This crop is one which requires peculiar treatment under particular environment in the way of soil and cultivation. While enormous quantities of onions are grown in the Southwest and on the Pacific coast, the main or commercial crop is found in a few states north of the Ohio river and east of the Mississippi. Leaders in acreage and output are Massachusetts, Connecticut, New York, Ohio, and Indiana. Besides these states many onions are grown in the Middle West, but they do not cut much figure in the autumn and winter commercial markets. In New England there are devoted to onions about 2500 acres which annually produce 700,000 to 1,000,000 bushels. Intensive methods are used. Production varies from 300 to 1000 bushels, or even more, and the average price of 45 to 50 cents a bushel means that the land is capable of earning $240 to $500 per acre. The 1910 crop in Massachusetts yielded three-quarters of a million bushels.

One of the special money crops that bring sure returns is asparagus. This is a crop which can be produced successfully on sandy land. The sub-experiment station farm at Concord, Mass., has proved this. Light, sandy soil grown up to scraggy brush was cleared, buckwheat sown and plowed under. This

provided humus, and with thorough cultivation and judicious use of chemical fertilizers astonishing growths of asparagus were forthcoming. Eastern Massachusetts is a great center for asparagus, notably in the vicinity of Concord and Lexington, 20 miles outside of Boston. Cash returns are anywhere from $300 to $500 an acre, and it is not overly expensive to produce. Once a plantation is started it is good for a decade or more. Wilfred Wheeler, Concord, Mass., has 30 acres under asparagus and his returns are $300 to the acre. C. W. Prescott of the same town, and president of the Asparagus Growers association, has 25 acres from which, in 1910, he received $5000.

Cereals in New England

The belief is very general throughout New England that much more might profitably be done, and that much more will be done, in growing corn. This in fact was a chief reason for the New England Corn Show held at Worcester in November, 1910. To those who attended this show the exhibits were eye openers and highly encouraging. To others, it will be worth while to glance briefly at the facts of corn production, both in and out of New England. Reference is here made to corn grown to full maturity, ripening in the ear and husked from the shock.

New England can grow more bushels of field corn to the acre than distinctively corn states of the West; not only can, but does. So good an authority as Uncle Sam, who keeps tab on crop production, has some interesting records. The United States Department of Agriculture, as noted in the accompanying table, shows that the highest rate of yield in the corn crop of 1909 was in New England. The three northern states, for example, averaged 35 to 38 bushels to the acre. Massachusetts made an equally enviable record, while Connecticut showed 41 bushels, exceeding every other state in the Union. Iowa, for example, averaged only 31½ bushels, Nebraska, scant 25 bushels, Kansas, a shade less than 20 bushels; while the average for all of the United States was only 25½ bushels. The

figures covering a 10-year average are equally impressive, showing that for a long period of time the New England states have maintained the supremacy in corn growing.

In New England, corn is the leading cereal, although wheat, oats, barley, and rye are actualities. The time was when the East took no back seat in total corn production, but with the opening of the boundless areas in the West and Middle West, and improved transportation, it was possible to raise corn

CORN YIELD PER ACRE IN BUSHELS AND FARM PRICE

	10 year average production 1896–1905	Crop 1909	Farm price Dec. 1, 1909
Maine	35.1	38.0	80c.
New Hampshire	34.0	35.1	76c.
Vermont	35.1	37.0	73c.
Massachusetts	35.9	38.0	81c.
Connecticut	35.8	41.0	75c.
Rhode Island	31.2	33.2	97c.
New York	30.3	36.0	74c.
Ohio	34.8	39.5	56c.
Michigan	32.2	35.4	61c.
Iowa	32.4	31.5	49c.
Kansas	22.0	19.9	54c.
Nebraska	28.8	24.8	50c.
United States	25.2	25.5	59.6c.

there in an extensive way on the virgin soils, and ship to eastern markets for less than New England farmers could raise the product. Then it was that the East began to produce less corn, and continued so to do for many years. Within the past half-dozen years however prices have advanced so materially that the eastern farmer sees the necessity of again producing more of his own corn, inasmuch as the western product is finding other outlets, not the least of which is the feeding of stock in the states where the corn is produced.

That there is a great corn-growing revival in New England is well shown by the big New England exposition referred to above. Displays were there which vied with the great states of the West at the national show. Each of the six New England states took interest in this exposition, and better than $5000 was paid out to growers. Daily lectures and demonstrations were provided, and the whole affair conducted on a broad edu-

cational basis which is sure to be felt for years to come by eastern agriculture.

As showing what New England can do in the way of corn, it is remembered that it was a Connecticut youth, N. H. Brewer, who won the highest prize at the national corn show in 1908, with a record of 133⅓ bushels to the acre. The next year he raised 40 acres and produced over 100 bushels to the acre. Excellent as is this record, phenomenal as it seems, in the light of past records, it was undoubtedly surpassed by that of Perley P. Davis of Granby, Mass., won at the New England corn show, at Worcester, in November, 1910. As the two yields appear not to have been judged by the same method it is not possible exactly to compare them. The Davis yield was reduced to the standard of 12 percent moisture, and consequently shrunk from 127 bushels containing 43 percent of water and cob to 103.23 bushels of crib-dry corn with 12 percent moisture, containing 4934 pounds of actual food — that is, protein, fat, sugar, etc. To suggest the importance of this performance in corn-growing we can do no better than quote from a review of the corn show made by a leading expert agriculturist, not, by the way, a New Englander:

"Mr. Davis, the young man who won the grand prize for growing over 103 bushels of crib-dry shelled corn on an acre, has done more of real service to Massachusetts than any governor of that Commonwealth who has held office since the Civil War. Mr. Davis has shown how Massachusetts can provide more of her own bread, how waste land can be made productive, how farms can be doubled in value, and how in consequence a revised edition of the old-time farm life can be made possible. Such a man on his farm makes history in a way that no governor can match by his work in the State House. The crop analyzed 11.73 percent protein, which meant 597 pounds of protein to the acre. This is more than you can grow in over four tons of good clover hay, and in addition you have the dry fodder, which is also superior in the flint varieties. All these things increase the confidence generally expressed at this corn show, that New England is to come nearer and nearer to feeding her own people. Clover, alfalfa, soy beans, and vetch

PRIZE APPLES AT THE BOSTON SHOW IN 1909

can all be grown in New England, and now that corn growing is to be made popular, the amount of home-made bread, meat, and eggs will be largely increased. Let us look at the money side of it. This crib-dry corn will sell for feeding for $1.10 per bushel. That means $113.55 for the grain alone — not for seed, but in competition with grain which made only 40 bushels per acre. The fodder will sell for at least $15 more. Now, where is the acre of corn in Iowa, Illinois, or other corn-growing states that will give $130 income? If you say that the acre of western corn does not need the ton of fertilizer and the hand work of culture, we can say leave out the cost and still the acre of Massachusetts corn will out-profit the western acre by more than 50 percent. That is because these flint varieties are heavier yielders, because the selling price of corn is greater, and because the fodder has a good selling value. There is no disputing the fact that Mr. Davis's record is genuine. Now let any western farmer who has ever won such a prize come forward and show what his acre's product actually sold for! What I am getting at is the fact that this corn exhibition proves what we have claimed for years, that $50 land in the East can be made to earn a greater profit than $150 western land — at growing corn."

Wheat, both winter and spring, grows luxuriantly throughout all New England. It is simply a question of whether there are not other crops from which the farmer can secure more money. Aroostook county, Me., produces many thousands bushels of wheat annually, also oats. There, a yield of 30 to 40 bushels of wheat to the acre is the average. One year with another, this brings in the vicinity of $1.25 per bushel. A yield of oats below 50 bushels is counted poor in New England. Fields of 40, 50, and 60 acres in extent in either wheat or oats are common in northern Maine, and occasionally seen in Massachusetts and other eastern states. J. L. Smith of Hawley, Mass., in 1909, had a single field of 65 acres oats, which thrashed 50 bushels to the acre for the entire area. In 1910 he had a field of 30 acres barley. A Lenox, Mass., farmer, George W. Ferguson, harvested, in 1910, 417 bushels winter wheat from 10.7 acres of land, and sold the wheat in

the Pittsfield market, a short distance away, for $2.50 a bushel, for seed purposes. His and other successful cereal expert methods in New England are not radically different from those common in the grain belt. Thorough tillage with plenty of humus, provided by cover crops plowed under, is the meat in the cocoanut which brings such fine returns. Mr. Ferguson sold his wheat straw for $150, which brought a gross return of nearly $1200 in a single season from his ten-acre wheat field. Such returns in the grain belt would cause a stampede, but in New England it attracts no particular notice.

Market Gardening

The twelfth census reported a production of $1,421,976 worth of vegetable products from Middlesex county in the year 1899. There has, without doubt, been a large increase in that production since that time. In addition, Middlesex county showed the greatest per acre production of any county

WEATHER BUREAU

Average Rainfall in Inches and Hundredths, 1909

States	April	May	June	July	August	September	Annual
Maine	3.94	2.73	2.45	2.85	2.45	7.36	45.17
New Hampshire	3.28	2.49	2.88	2.24	2.85	4.07	35.60
Vermont	2.90	4.49	3.16	2.54	3.17	4.20	35.86
Massachusetts	4.83	2.79	2.55	1.92	3.11	4.55	41.43
Rhode Island	6.34	3.41	1.88	0.95	2.23	3.95	41.33
Connecticut	6.56	2.75	2.44	1.89	3.37	4.35	43.37
New York	3.67	3.69	2.86	2.88	3.07	2.96	36.03
Pennsylvania	5.39	2.90	4.48	2.14	2.31	2.27	37.38
Ohio	4.13	4.72	5.86	3.76	3.56	1.78	42.65
Illinois	6.24	4.01	4.15	4.52	2.22	3.69	43.11
Kansas	1.43	3.86	5.45	5.86	1.25	3.23	32.71
North Dakota	0.81	4.29	3.21	2.89	2.25	0.86	17.73
New Mexico	0.29	0.62	0.91	2.14	3.08	1.76	12.83

in the United States, and ranked second in valuation of its vegetable crops to only one, that being Queens county, N. Y., which has an area $\frac{1}{3}$ larger than Middlesex and a valuation of vegetable products $\frac{1}{15}$ greater.

As a state Massachusetts ranks sixth in the Union, listed according to the valuation of her vegetable products. This

ranking of Massachusetts, and particularly of Middlesex county, is very largely due to the high state of development to which vegetable growing under glass has been developed. Nowhere in the world is head lettuce produced so systematically and successfully in the glass house as in Middlesex county. There the business originated and there it has largely developed. The towns of Arlington and Belmont are dotted with the glass houses of winter vegetable growers. The chief products of these houses are lettuce and cucumbers, and these products find their markets throughout New England and New York state. Other products are grown, mainly tomatoes, radishes, parsley, mint, and cress, but these are entirely consumed in the home market and are of minor importance.

The extremely rapid growth of the glass-house vegetable industry which took place during the years from 1895 to 1905 has ceased. Competition from the southern truck grower has been the cause. The condition at present is one of healthy settling down to business, with less encouragement to increase the capital investment than ever before. Whether the truck grower of the South Atlantic states will be able to so successfully grow and land his products in our markets is an unsolved problem. The uncertainty of nature's distribution of cold and wet will probably enable the New England glass-house gardener to not only successfully compete with the southerner, but to gradually increase his business, as he may improve his products and his method of distribution, and as his products prove their high quality.

The outdoor gardening of Massachusetts, Rhode Island, and Connecticut is equally well developed. The three northern states do not excel in this respect, largely because of their lack of large cities and dense centers of population.

The climatic conditions of New England are excellent for the production of high quality vegetable products. The soils are so varied that in nearly every locality may be found that sort particularly suited to the production of small fruits and vegetables. The size of market gardens is typically small. Those of New England vary from five to 150 acres. It is not unusual for the product to equal a value of $1000 per acre,

and the average product would probably range somewhere between $400 and $800. The business demands men of practical ability, some capital, in cash or credit, a natural liking for the business, willingness to work hard and to stick to it. To a person with these qualifications market gardening is a good business proposition, and New England a splendid place in which to locate.

The market for good garden produce is not only poorly and inadequately supplied, but the consumption of vegetable products is much more limited than it would be were people either aware of the full virtue of vegetable products as food or able to purchase them when wanted. Perhaps the greatest immediate need is an improvement in methods of distribution. An educational campaign among those that sell vegetables, which will show the profit in proper handling and protection, as well as one among the general public, to indicate the food value and health-giving qualities of various garden products, would do as much toward developing the industry as any one thing.

There are many small cities and large towns in New England very inadequately supplied with vegetables of local production. It is necessary for them to depend upon a supply of perishable products shipped from a distance, passed through the hands of two or more middlemen, and handled by the transportation company before the consumer has a chance at the product. The nature of the product is such that its quality is thus damaged, its good appearance lost, and its sale limited. In each of these localities is an opportunity to build up a business which will provide a fair income and a pleasant occupation. There are shipped into Boston each season many carloads of cauliflower, celery, spinach, and tomatoes, much of which might well be grown in the market gardens of New England.

There are efficient market-gardeners associations in Boston and Worcester, the former having 200 members. These associations have been of great benefit to the business and to the individual gardeners.

Fruit in New England

Apples have always been a New England staple crop, but it is only within the past few years that apple raising has become recognized as a possible source of very great additional wealth. There are now many large commercial orchards growing, and within the next five to eight years New England apples will have recovered the eastern and export markets. Prof. F. C. Sears, of Massachusetts Agricultural College, says, in summing up the advantages of New England as an apple region:

"In the first place, land values are very much in favor of New England. Men have been 'going west to grow up with the country' for so long that prices for land in any of the good fruit sections are abnormally high, while they are correspondingly low here in the East. One hears constantly of the wonderful prices which are paid out there for raw lands, or for land just set to orchard, while $1000, $2000 and even $5000 per acre have been refused for bearing orchards. Here in New England, on the contrary, splendid orchard land can be bought for $5, $10 to $50 per acre. No country in the world abounds more in ideal orchard sites than New England. Next to the question of land, and more important in some ways, I should place the matter of the quality of New England-grown fruit. I believe that there is no other section where the flavor and aroma and juiciness and sweetness, and, in fact, all those factors on which we base our estimate of the quality of an apple, are more highly developed than right here. A third factor which certainly ought to stand in favor of the New England orchardist is the matter of markets. If he is competing on anything like equal terms with his western competitors in other respects, it would certainly seem that the fact that he is right in the midst of the best markets in the world, while his competitors are three thousand miles away from them, ought to give him the difference in the cost of freight and express rates as a margin of profit, or a handicap on his competitors."

Apple culture is not necessarily a difficult thing. An or-

chard once located, it is largely a question of giving proper fertilizing, cultivation, and looking out for insect and fungous pests. Principles for these various operations are pretty well agreed upon by all expert growers, and a conscientious man, who is not afraid to work, cannot go far wrong if he backs up his good judgment with any one of the detailed sets of instruction on apple culture available. The hills, of which New England has so many, are preferred as sites, thus providing good water drainage and, what is equally essential, air drainage. A gravelly loam soil is ideal, although many variations produce satisfactory results. The careful grower will avoid too many varieties, perhaps banking on no more than four or five to cover different seasons. Yellow Transparent, Red Astrachan, William's, Oldenburg, Early Gravenstein, Wealthy, Fall Pippin, McIntosh, Hubbardston, Westfield, Blue Pearmain, Palmer Greening, Sutton, Baldwin, Spy, Roxbury, and Rhode Island Greening are typical of the summer, fall, early winter, and late winter sorts which are in strong favor in New England markets. This does not imply that other varieties cannot be produced successfully, and it is perhaps safe to say that with the varying sites and soils in New England there is not a standard variety which cannot be produced in its perfection. Most growers are setting permanent trees 40 feet distant each way, and then interplanting either with early bearing sorts like Wealthy, Bismarck, or Wagener apples, and in other cases using peach or plum trees as fillers. The idea is that the slower growing sorts that do not come into full bearing for 12 to 15 years will not need so much room at the start. Early bearing apples and the other fruits will produce five to eight paying crops before the standard apples need the room.

If a man wishes to still further intensify, as some are doing, currants, gooseberries, strawberries, and raspberries are raised between the rows of trees for the first two or three years. Vegetable crops, such as potatoes, corn, and squash, are available. These intercrops actually pay for the early care of the orchard.

Those who have cultivated, fertilized, and sprayed fruit trees show some remarkable returns. An early spray of lime-

sulphur solution will kill the various scales like San José and have distinct fungicidal effect as well. In peaches it will kill the San José scale and leaf curl, the two greatest enemies. Later, two or three sprayings with bordeaux mixture, or one of the newer sulphur compounds, to which some poison like arsenate of lead has been added, will complete the job against rot, coddling moths, etc. How these enemies are regarded by fruit growers with initiative is shown by the remark of J. H. Hale at a horticultural meeting when growers were bewailing the ravages of the San José scale: "Thunder! What's the matter with you folks? The San José scale is a blessing to New England and all other fruit growers. It forces growers to spray; just the thing they ought to have done before."

As showing the remarkable returns that follow intelligent culture of the apple, we cite: C. T. Holmes of Charlotte, Vt., has an apple orchard of 100 acres. In 1909 he gathered 6000 barrels, mostly Greenings. These brought better than $20,000. Mr. Holmes has refused $50,000 for his farm. T. K. Winsor of Chepachet, R. I., bought his father's farm several years ago, giving a mortgage. The 40-acre apple orchard was renovated, sprayed, fertilized, and the returns soon paid for the farm. Now in a good year 2000 barrels go to Providence cold storage, to come out at opportune times at $6 to $8 a barrel. F. H. Morse of Waterford, Me., bought a semi-abandoned farm for $650. A few years later he took $2000 worth of apples from the place in a single year. Most of these trees were growing wild in the pastures. Mr. Morse pruned and grafted them, and later sprayed. Three years after grafting a tree he has picked three barrels of fine fruit, and five years after grafting, five barrels. This fruit sold at $5 a barrel. One old wild tree, 20 feet in circumference and probably 100 years old, was redeemed, and in 1910 gave better than ten barrels apples. From a small orchard of 553 trees, C. E. Hardy of Hollis, N. H., sold, in 1907, $2400 worth of apples, in 1908, $2500, in 1909, $3100; a total of $8000 in three years. Mr. Hardy says that before his orchard was pruned and sprayed and fertilized the sales amounted to little.

The old notion was that the South, New Jersey and Dela-

A CONNECTICUT PEACH ORCHARD, SHOWING IRRIGATION METHOD

ware, and Michigan had the inside track on peach production. Later developments have proved that New England can equal, if not excel, those localities. In recent years the restricted sections in Connecticut have been gradually added to, and many farmers have learned that large areas are adapted to peaches. The teachings and living example provided by J. H. Hale, the leader in peach raising in America, followed by men of the Lyman, Barnes, and Root type, blazed the way for others to follow. Even the cold bleak hills of Litchfield county are now producing fine crops of peaches. The Wilbraham mountains in Massachusetts are coming to the front as the home of satisfying peaches — for both grower and consumer. Both eastern and western sections of the Bay State are producing peaches successfully. Even far-north New Hampshire growers are raising the crop.

The successful culture of the peach is not so easily approximated as with the apple. One must be more careful as to site, particularly as to good air and drainage. The principles of cultivation and fertilization must be attended to more strictly than with the hardier fruit. Peaches succeed on much lighter soil than apples, and a soil of a limestone nature appears to be ideal. However rocky and full of limestone ledges a hill may be, it is not impossible to grow peaches on it, provided other conditions are right.

Peach growers are learning that the crop can be controlled largely by the kind, time, and amount of fertilization and cultivation. C. E. Lyman of Connecticut matured his Elberta peaches in 1910 fully ten days ahead of the normal season by pushing them with nitrate of potash. He provides or withholds nitrogen, potash, or phosphoric acid, just as the tree and the season seem to demand. Mr. Lyman, in 1900, marketed around 100,000 baskets of peaches. He has 400 acres in the crop, and is setting more every year. Some of the trees set fifteen years ago are still bearing and have paid for themselves many times over.

Peaches come in bearing three years after planting, and the fourth year usually provides a fine crop. Even if a tree lives to be only eight or nine years old, it should pay for itself

many times over. D. H. Eaton of Wilbraham, Mass., harvested in 1909 from one eight-year-old tree twenty-two baskets. These brought seventy-five cents per basket. From his orchard he had 3200 baskets which netted $2500; 375 of the trees were only three-year-olds, the remaining 600 being eight years old. J. H. Hale has taken rough land which cost him $100 to $400 an acre to redeem and made money on it. There are thousands of acres of land in Connecticut and Massachusetts suitable for peaches, which would not cost more than $40 an acre to reclaim.

Grapes, Small Fruits and Berries

Grapes are a sure crop in New England if proper varieties are selected. It has been thought that the climate in New England is too severe for grape-culture, and the coming of frost in the fall too irregular. These handicaps are not of the same importance they once were, owing to a better understanding of grape culture and the development of more suitable varieties. The famed Concord grape originated in New England, in the Massachusetts town of the same name, and the original vine is still in bearing. It is of interest to note here that the Baldwin apple was originated near the birthplace of the Concord grape. There are perhaps no phenomenal crops of New England grapes to report, though very creditable crops are raised in many localities. In Norwood, Mass., there is a very interesting and valuable grape experiment station, if it may be so called, where Mr. N. B. White is originating varieties of grapes particularly adapted for New England culture. He has cross-bred, and bred from seed, several varieties that have been fruited several years and seem to answer all the requirements imposed by our rigorous climate and our uncertain frost-date, and he is firmly convinced that grapes may be raised in New England with the same measure of success as attends the business in other sections, the prime requisite being that the grapes shall have been bred in New England from the seed, and crossed with varieties that will give quality for the rugged stem from New

England soil. He has one grape that is the result of crossing, or breeding in, sixteen varieties. It is a great bearer, and the grapes are rich and of good flavor. Another of his originating is a very large and prolific grape on a perfectly hardy vine, especially adapted for the making of jelly.

The culture of berries and small fruits does not vary materially from that prevailing in other sections, and each state agricultural college and experiment station can provide bulletins and directions for a prospective farmer to follow for best results. Close to New Haven, Ct., is one noted section, and another is at Concord, Mass. A farmer living at South Hancock, Me., E. W. Wooster, has netted as high as $1000 in a single season from a trifle over one acre of strawberries. A. E. Ross, another Maine farmer in Berwick, has set strawberries in rows five feet apart and grown cabbage between the rows. The two crops harvested inside of 15 months returned him over $2000 an acre. A. A. Halladay & Sons of Bellows Falls, Vt., harvested 5000 quarts from one-quarter acre one year, which were sold at 15 cents straight. This meant $750, or at the rate of $3000 to the acre. A. B. Howard & Sons of Belchertown, Mass., have taken as much as $1000 from a single acre of strawberries. Yields of 6000 to 10,000 quarts berries to the acre are normally reported. Good authorities say it is possible to do better with raspberries, and still others say they would rather take their chances with blackberries. Cranberries grow only in restricted sections, where water flowage can be provided to assist in protecting the crop. Currants and gooseberries have distinct possibilities, especially where a farmer is starting a young orchard. He can set these crops between the rows and secure a return of $300 to $400 to the acre annually. An example of a farmer who has done this is A. A. Eastman of Dexter, Me. From 2½ acres land, which is first set to plums and then interplanted with currants and gooseberries, Mr. Eastman has paid for his home, educated his children, and has money in the bank. Wilfred Wheeler, Concord, Mass., who has made a marked success in raising pears, strawberries, and currants, says he has picked as high as 14 quarts of the latter from a single

bush. These sell at 8 to 10 cents a quart in the Boston market, 20 miles distant. Gooseberries are even more profitable with him, returning $400 to the acre. Plums grow abundantly in the six New England states. C. J. Spaulding of North Buckfield, Me., Elmer B. Parker of Wilton, N. H., and A. A. Halladay of Bellows Falls, Vt., gather annually fine crops from those northern latitudes. The latter has been raising plums for 30 years and has an orchard of 600 trees. His plums sell at $3 per bushel, and he picks as many as two bushels from a single tree. These are set close together, so $400 an acre is not an exorbitant figure as returns from a good plum crop. Cherries sell at $4 a bushel, year after year. Men who are succeeding in producing fine crops of this fruit are J. T. Molumphy, Berlin, Ct., who has about 200 bushels annually, and A. B. Howard, Belchertown, Mass.

Live Stock and Hay

In the matter of dairying, New England is at the forefront. Its gently sloping hills, its well watered valleys, its delightful atmosphere, its environment conducive to the growing of grasses and clover, its plentiful crops of silage corn and rye and roots, and its opening vista of alfalfa culture, all lead to ease of milk production. In the matter of market outlet comes into play the ever-increasing and urgent demand from the populous towns and cities, and at prices which have recently been relatively better and more commensurate with the cost of production affording living profits than ever before. The business in whole milk is enormous. Boston requires nearly 10,000,000 quarts per month. In that city the wholesale price has advanced from a yearly average of only 3.8 cents a quart a decade ago to better than 5 cents. The demand for whole milk in all cities and large towns is so great that there is a very meager supply left for converting into butter and cheese. Splendid cheese is made in Vermont, commanding good prices, and in recent years Connecticut has been developing an interesting industry in soft cheeses. And as for creamery butter, this is truly in a class by itself, so

sharp is the demand for every pound made. Prices of good butter run from 28 to 38 cents a pound the year around, and butter fat sells at the creameries around 30 cents per pound. In the event that the latter or cheese factories are patronized, the farmer has skim-milk to feed his growing stock on the farm. In many cases farmers live near small towns, villages,

HAY AND POTATOES IN NEW ENGLAND

CROPS AND VALUES, FARM PRICE, DECEMBER 1, 1909

	Hay			*Potatoes*		
	Acres	Tons	Farm value per ton	Acres	Bushels	Farm value per bu.
Maine	1,400,000	1,330,000	$14.70	130,000	29,250,000	47c.
New Hampshire	640,000	621,000	17.90	21,000	2,730,000	64c.
Vermont	879,000	1,099,000	14.70	30,000	4,650,000	44c.
Massachusetts	585,000	673,000	18.90	34,000	4,250,000	79c.
Connecticut	490,000	564,000	19.30	36,000	4,320,000	83c.
Rhode Island	62,000	68,000	18.60	6,000	750,000	80c.
New York			14.20			50c.
Ohio			10.90			56c.
Iowa			7.10			55c.
Nebraska			6.00			60c.
Michigan			11.40			35c.
Missouri			8.30			67c.
United States (1909)			10.62			45.3c.

and cities, where they peddle their own milk, receiving 7 to 9 cents a quart. Following this line of dairying, W. L. Whipple of Woonsocket, R. I., has taken $20,000 net from the soil within a few years. In 1909 he received 5 cents a quart for his milk delivered at a nearby point. Those who wish to provide an extra fancy product sell it at 12 and 15 cents a quart. Examples of the latter class are Charlotte Wells of Warelands, Mass.; George H. Ellis of Newton, Mass.; and Wilson H. Lee of Orange, Ct. The latter started in a small way and now has a daily output of 800 to 900 quarts. He sells his cream at $1 a quart. All of the milk sells readily at 15 cents a quart. With the farmer raising more of his crops, especially rye, oats, and peas, sowed corn and millet and barley, and perhaps raising a little extra corn and oats to be ground for mixed feed, handsome profits are in sight.

There are many cases where farmers have a special butter

A PROFITABLE PEACH ORCHARD WAS PLANTED ON THIS LAND, IN CONNECTICUT

trade, selling their product to families at 35 to 40 cents the year around. J. W. Alsop of Avon, Ct., has a registered herd of Guernsey cattle and sells his cream at 50 cents a quart, and butter at 50 cents a pound at the door. G. W. Ferguson, Lenox, Mass., makes sweet cream butter and sells it for $1 a pound. That a young man can go in debt for a farm and pay for it with dairying as a specialty is shown by the success of A. J. Pierpont, Jr., of Waterbury, Ct. Ten years ago he bought a farm, giving a mortgage for $7000. He keeps Holstein cows and sells the milk at 4 cents a quart at the door. He has gradually worked into a pure-bred line of stock. Besides paying off the original mortgage, has a farm worth $10,000, and the stock is worth at least $5000 more. Another such example is that of F. E. Duffy, West Hartford, Ct., who eight years ago bought a farm, the entire annual product from which brought $33. He put on Jersey cows, followed a careful system of rotation of crops, fertilized the land, and in 1909 his sales totaled $10,000.

Beef cattle have distinct possibilities. Less than 5 percent of the beef eaten in New England is New England grown. Farmers have got into the habit of letting the packing houses supply consumers. There are a few choice herds of Herford, Devon, and Shorthorn cattle in the New England states, but in most cases the product is needed for breeding purposes and very few reach the butcher's block. What local beef is turned into the markets always returns gratifying prices. The lack of suitable abattoirs in the small towns is a drawback to the raising of beef, but those farmers who are located at some distance from the railroad and on cheap land might well consider the advisability of keeping a beef or dual-purpose breed. H. C. Weymouth, Dexter, Me., sold a pair of cattle at the Brighton, Mass., stock market at 7 cents a pound. They weighed 1900 pounds each, which is a return of $130 per animal. G. E. Taylor, Shelburne Falls, Mass., says he milks shorthorn cows as long as they are profitable, and then sells them for beef, receiving $60 to $75 each. The point is, if it is possible for men to make such records with broken-down oxen and milch cows, what would be the outlook for a man who

A NEW HAMPSHIRE COUNTRY HOME

made a specialty with a distinct beef breed, bred for beef purposes? The problem of raising beef for the market is not solved when the farmer finds he can afford to save and raise his calves. Not only are there few slaughtering establishments but there is no adequate system of storage and distribution for home-bred beef. The machinery for slaughtering and handling will be developed, however, if conditions remain favorable for the raiser; and we may hope that the signs of an impending revival in cattle raising may prove true auguries of the hoped-for fact.

When livestock authorities of the West and abroad visit New England they are astonished to see so few sheep. The question is again and again asked, "Where are your sheep?" The sheep industry has greatly declined in the East for years, and now not one sheep is found in New England where formerly there were a dozen. That this is not due to unprofitableness is shown by the remarkable success of those who stick to the industry. Conditions could not be more ideal for successful sheep husbandry than in New England, with the exception of possible loss through damage by dogs. But dog damage does not in the least deter those who have really made up their minds to raise sheep, and in recent years there has been legislative action in the different New England states looking to a better protection of flocks. New England hill pastures provided with abundance of water and good feed are just the place in which sheep revel. The climate imparts vigor, and the sheep shows its appreciation through clip of wool and robust offspring. A good lamb produced in season for hotel trade will never bring less than $8, and as high as $20 is occasionally reported. Probably less than 10 percent of the lambs for the New England market are raised in New England. With such a demand unfilled by local production, and with prices so remunerative, the reader can judge for himself as to the possibilities. A few typical examples of men who are raising sheep today are illuminating. M. H. Munson, Littlefield, Mass., gave up his job in a Chicago packing house and bought a cheap Massachusetts farm. He now raises lambs which at 70 days old bring $7 each, and he has the ewe and wool left. W. C. Whit-

A MASSACHUSETTS COUNTRY HOUSE

man & Son, South Turner, Me., received, in 1909, a gross return of $9.50 each for sheep, and had a better flock at the close of the year than at the start. Some of their hothouse lambs sold at $10 to $12 each. In 1908, the 98 ewes of E. L. Tracy, Newport, Vt., gave him 132 lambs which later sold at $5.50 each. A. L. Harlow, Brownsville, Vt., has stuck to the sheep business for 20 years. His flock shears an average of 10 pounds to the head, which means $3 each for wool in a normal season. His lambs at five weeks old weigh 40 pounds, and at ten weeks 100 pounds. They are dropped in January and February, and sold to hotels at $10 each, dressed. C. C. Jones, Bennington, Vt., specializes with lambs of the Dorset breed, which at five weeks old weigh 40 pounds, and at 16 weeks 130 pounds. From December to February, in the winter of 1909–1910, lambs dressing 30 to 40 pounds each brought an average return of $12 a head in the New York market. Mr. Jones says if a man cannot clear on 100 ewes $700 to $900 annually he is not getting what he should.

With New England pork selling as high as for two years past, with quantities of available skim-milk and abundant pasturage, not to mention the large quantities of available garbage from towns and cities, swine offer an attractive proposition. A. J. Stapleton, Springfield, Mass., bought a light, sandy farm of 65 acres, gave up a $1400-a-year job, and went to raising hogs and alfalfa. He is meeting with remarkable success, and says: "If I had given up my work five years earlier and devoted entire attention to hogs and alfalfa, I would have been $10,000 ahead of the game now." E. H. Clark, East Morris, Ct., October 17, 1909, bought 35 pigs six weeks old for $78.50. December 21 following he bought two hogs for $30. He grain-fed the lot to February 18, at a cost of $115. On the latter date he sold 3324 pounds of pork at wholesale at 12½ cents, or $478, and 632 pounds a few days later at 11 cents, returning $69.50. The total cost was $224, leaving a profit of $323 for four months' interest on his money and the little time it took to feed. A Vermont farmer, J. R. Barry, St. Albans, raised 70 pigs in 1908, and sold them for $1088. Pigs were charged with all the grain and

skim-milk used, also at the rate of $3.50 each for original cost. After paying these expenses the pigs netted $5.82 each. A Maine farmer who is enthusiastic concerning New England resources is George M. Twitchell, Auburn. He says he can raise pork at 3 cents a pound, doing it largely on pasture which includes clover or alfalfa, and perhaps rape. When 1910 pork brought 10 and 11 cents a pound wholesale, and with this difference of 7 cents between cost and selling price, a determined farmer ought to get along. It suggests a profit of $15 to $25 on every hog.

New England farmers import millions of dollars worth of western horses every year. It is said that Aroostook county, Me., the land of potatoes, buys about a million dollars worth of horses annually. In the fall of 1909 the writer happened to be in a sales stable at Fort Fairfield, Me., Aroostook county, when a car of 28 horses arrived from the West. It cost $8000 to land the bunch in Maine, and the owner said the cheapest pair would sell at $600, and the most desirable match would bring $1000. Aroostook farmers buy these heavy horses for their potato machinery. The same condition prevails in other New England sections. The farmers are buying their horses instead of raising them, in spite of the fact that a desirable heavy working team cannot be had for much less than $600. New England is the home of the tough and rugged Morgan horse, and the recent assistance of the federal government in a coöperative breeding plant at Middlebury, Vt., it is believed, will renew interest in breeding these horses. That locally grown stock is usually desired is shown by the keenness with which they are snapped up at fancy prices.

The opportunity for poultry raising in New England is unlimited. With the many large cities and manufacturing towns employing thousands of hands who are absolutely dependent upon the farmers for their food, the market is always sure. New England is now producing but a small proportion of the eggs and poultry it consumes, whereas it should be able to put a very large surplus into the general market. It is not difficult to begin the business. Many farmers have started in a small way with a little poultry, carefully felt their way

along, and finally developed returns of $4000 to $5000 annually. Henry D. Smith, Rockland, Mass., for 22 years devoted his energies to mercantile life, then started to raise poultry. He now hatches around 5000 chicks annually, and keeps about 400 laying hens through the winter. His specialty is roasters. C. C. Peck of South Sekonk, Mass., started, in 1900, in the poultry business, without a cent. A neighbor furnished the plant and money, against which Mr. Peck placed his labor. Within four years Mr. Peck bought out the partner. He hatches 3500 chickens annually, and sells the cockerels as roasters at 24 to 25 cents per pound in the Providence market. From 1000 to 1200 laying hens are wintered. For the year ending December 31, 1909, his 1050 hens averaged 174 eggs each. A liberal estimate for cost of feed is ½ cent a day per hen, which leaves around $3 per hen annually, not including roasters and broilers. Lester Tompkins, Concord, Mass., started in a modest way with a small capital and is now a recognized American authority on Rhode Island Reds. A few months ago he sold 18 birds for $1800. In the spring of 1909 he sold $3500 worth of eggs for hatching.

The many valley farms in New England, fed with never-failing streams, prove ideal meadow lands. The late George M. Clark of Higganum, Ct., was a typical exponent of increased profits through grass farming. He was recognized, country-wide, as an authority on big hay crops, frequently cutting as much as six tons of cured hay from an acre, off fields of ten to twelve acres. He was successful in keeping the land in grass almost indefinitely, through harrowing the land to reseed, and judicious use of chemical fertilizers. Hundreds of cases could be cited where New England farmers are taking annually three to four tons hay to the acre. In central Maine, W. D. Hurd, while at the state university at Orono, placed in the college barn 4½ tons hay to the acre. Rev. G. L. Gleason of Topsfield, Mass., cut, in 1910, 100 tons hay from about 30 acres land. He says he has taken more than $100 worth of hay from a single acre in a single season. It should be remembered that New England not only harvests these fine yields to the acre, but the price per ton received is unusually

PRIZE-WINNING OXEN AT DANBURY, CONN., FAIR

gratifying; $15 to $24 a ton is the range, occasionally more. C. E. Lyman, Middlefield, Ct., in 1910 cut 700 tons from 300 acres, and an aftermath of 100 tons more. In addition to harvesting these 700 tons hay he harvested the same season about 100,000 baskets peaches and better than 1000 barrels apples. For winter knitting work, Mr. Lyman goes to Buffalo or Chicago and buys 4000 or 5000 lambs, and brings them to his farm at Middlefield and feeds them on rowen, silage, and a little purchased grain. There are about 1000 acres in the farm, and it is reported that Mr. Lyman was offered $1,000,000 for the farm and its equipment. While this sounds like a fairy story, a little figuring will show that such an offer would not necessarily send one to the insane asylum. Reckoning 100,000 baskets peaches at an average of only 60 cents a basket would be $60,000. An 800–ton hay crop at a low estimate is worth $12,000 more. One thousand barrels apples such as Mr. Lyman has are worth $5000. His profits on feeding lambs are another $5000, making a total of $82,000. In other words, Mr. Lyman's farming operations are paying a gross income above 8 percent on a valuation of $1,000,000.

New England farmers are just beginning to learn that they can raise alfalfa with remarkable success. This will revolutionize eastern agriculture within the next decade. At first successes were few; but now each of the six New England states is accomplishing something with the crop. In Connecticut there are no less than a dozen who are succeeding with alfalfa in a large way. One of these is Charles M. Jarvis of Berlin, Ct., who has 50 acres of as fine alfalfa as ever stood outdoors. He cut, in 1910, six tons to the acre. With the possibility of producing this crop, which is worth practically as much, ton for ton, as bran, New England dairying and livestock husbandry has a brilliant outlook.

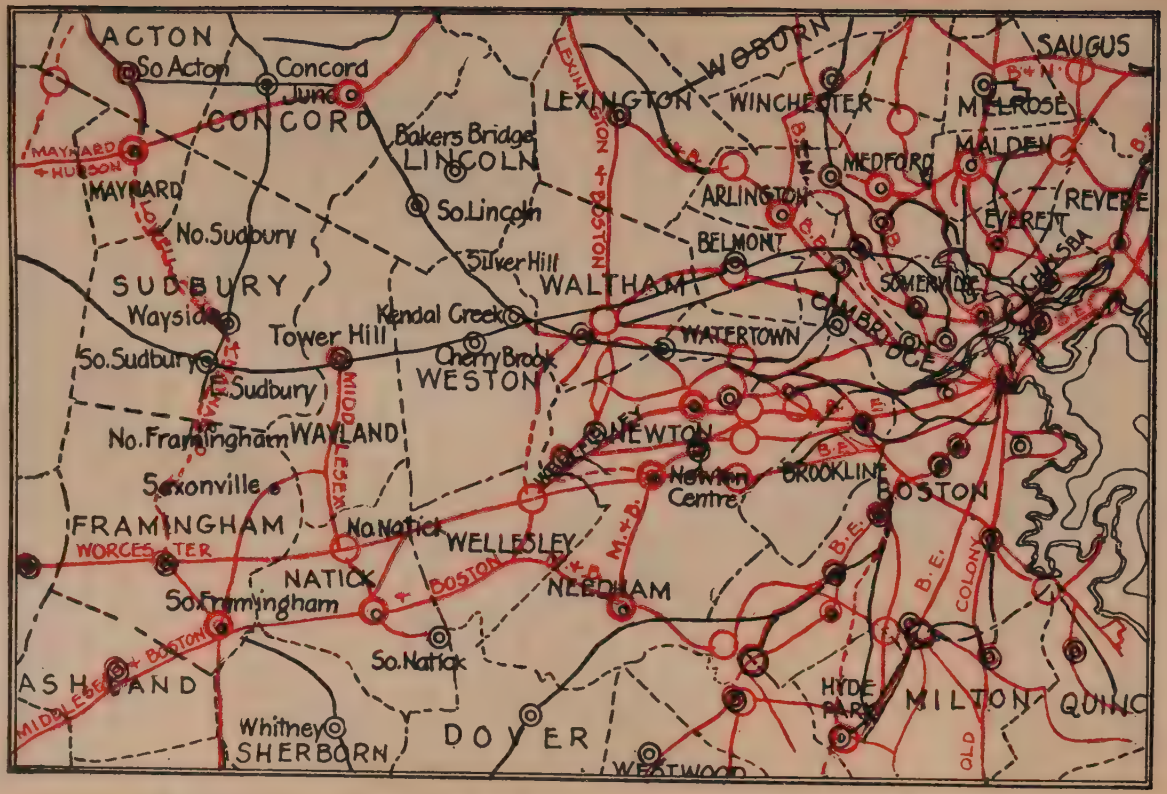
Potatoes in New England

Even the potato states of New York, Minnesota, and Michigan have to acknowledge the fame of Aroostook county, Me., when it comes to potatoes. No county in the world has so

A VETERAN APPLE TREE IN BLOOM

specialized on this industry as has Aroostook. Many stories could be told of how young men with little capital in Aroostook county buy farms and practically pay for them the first season. A man who has less than 50 acres of potatoes annually is a "one-horse potato farmer," and acreages of 100 to 150 for a single farmer are usual. The Aroostook soil seems especially adapted to potato production, ranging from a gravelly loam to a clear loam of a clayish base. Usually the potato crop follows a clover sod. A three-year rotation of potatoes, oats, or wheat, seeded to clover and plowed under for another crop of potatoes is much in vogue. Occasionally, two succeeding crops of potatoes are grown on the same land, and in rare instances three crops, but this is generally avoided owing to danger of scab or diseased potatoes. The Aroostook farmer puts on close to a ton of commercial fertilizer to the acre. A few days after the potatoes are planted and before they break ground a weeder is run over to dislocate any sprouting weed seed and conserve moisture. When the plants are up a hiller is used and dirt thrown completely over the young vines. This in turn is worked down with the weeder. Subsequent cultivation is with the two-horse cultivator, and later in the season a hiller is used to ridge the rows. Harvesting is done with the potato digger, followed by pickers, placing the tubers directly into barrels. All trade is on barrel basis, bushels seldom if ever being mentioned. Many are sold from the field and quantities are stored in immense storehouses, many of which the farmers own. A normal yield is 100 barrels to the acre. A fair price is $1 a barrel, although $1.25 is not uncommon. Here is a cash return in a normal season under normal conditions of $100 to $125 an acre. This is frequently exceeded through increased yield, or better prices, or both. The cost of production will run $50 to $60 per acre. This includes fertilizers, seed, spraying materials, labor, etc. Modern machinery from start to finish is in service, so that one man and a team can easily handle 25 acres. This leaves the tidy sum of $50 to $75 an acre for rent of land or to apply on the purchase price. This section is fast coming to the front as a seed-producing county. A strong trade has developed in Aroostook-grown seed for southern

A FIELD OF SHADE-GROWN TOBACCO



ELECTRIC STREET RAILWAYS AND STEAM RAILROADS IN THE BOSTON DISTRICT

Street railways — Projected street railways — Street railway junctions — Steam railroads

and southwestern markets. In a full crop year, 12,000,000 bushels of potatoes are shipped out of Aroostook county over the Bangor & Aroostook railroad. From the crop of 1909 a total of 9,363,000 bushels were shipped out of Aroostook. The table following shows the exact shipments as furnished by an official of the railroad:

From crop of 1909	9,362,842 bushels
" " " 1908	11,796,500 "
" " " 1907	6,006,845 "
" " " 1906	12,329,010 "
" " " 1905	7,725,372 "
" " " 1904	6,694,071 "
" " " 1903	3,341,735 "
" " " 1902	3,112,466 "
" " " 1901	4,471,183 "
" " " 1900	3,043,879 "

Farmers in other sections of New England are learning that they, too, can secure equal or better returns per acre for potato culture than Aroostook county. Somerset, Washington, and Oxford counties in Maine are coming forward in this way. Massachusetts and Connecticut have long been in the front rank as regards production per acre. Rev. G. L. Gleason of Topsfield, Mass., has raised 360 bushels to the acre. Charles E. Ellis, a Vermont farmer, succeeded in raising, in 1909, a crop of 465 bushels to the acre, which sold from the field at 54 cents a bushel, $251.10 gross return to the acre. He figured the fertilizer and labor cost $70 to the acre. E. H. Forristall, of Amherst, Mass., raised, in 1908, 350 bushels to the acre on new ground. E. S. Brigham, of St. Albans, Vt., raises 300 bushels to the acre, and through a careful itemized account of expenditures finds he nets $100 to the acre. J. R. Smith of Hawley, Mass., had 40 acres in potatoes, in 1908, and harvested better than 300 bushels to the acre.

Tobacco in New England

In Connecticut and Farmington river valleys in Massachusetts and Connecticut the cigar-leaf tobacco industry is large, occupying about 20,000 acres. In 1910 Connecticut raised more than 13,400 acres of tobacco, which yielded over

23,000,000 pounds of leaf worth $3,800,000, and the total value of the New England tobacco crop was over $5,000,000. The soil is especially adapted to growing the tobacco of which cigar wrappers and binders are made (which differs from the heavier and coarser types of tobacco grown in the South), being light color, friable, and might be called a sandy loam. The crop is not especially exhaustive to the soil, but liberal amounts of fertilizer are used because each acre supports an enormous plant growth every year. Liberal applications of New York city horse manure, combined with cottonseed meal, phosphoric acid, and potash in various forms, practically guarantees a good crop each year. In 1909 in New England was produced 90,500 cases of cigar-leaf tobacco, each case weighing 350 pounds. According to the government estimate the average price received last year for tobacco grown out-of-doors was 16 cents per pound. With an average yield around 2000 pounds cured leaf, selling even at the average price of 16 cents, it is seen this is a profitable crop. With intelligent, intensive cultivation, combined with up-to-date methods, as high as 2600 pounds is obtained and about 25 cents per pound received. Beside the tobacco which is grown in the open fields in Connecticut there were in 1910 about 470 acres of tobacco grown under tents, known as shade-grown tobacco. About ten years ago the first tobacco was grown under shade in New England. It was considered to be a fair success, but growers lacked experience and the proper variety of tobacco with which to work. They started with Sumatra leaf, which took too long to mature. Acreage in 1902 was about 700, but dropped until in 1908 only 190 acres were grown in the Connecticut valley. In the next year about 240 acres were devoted to shade-grown, and in 1910, 470. The success is largely due to the introduction of the Cuban variety, which cures quickly and is popular with the trade. As high as $2.50 per pound is received for the best shade-grown tobacco, and the poorer leaves bring from 60 cents up, with $1.50 a good average; the average for 1910 being $1.59. It is safe to say that five times as much tobacco could be grown in New England as is grown today, of such quality as to insure sales at paying prices. The land near the

sea, however fit for the growth of tobacco, cannot be devoted to that crop because proximity to the sea damages the burning quality of the leaf. It should also be said that not all the lands in the tobacco-growing region are well adapted to growing such leaf as the market requires. The supremacy of New England in the business of producing cigar wrappers has been gained by growing the crop on farms where it was the only product (or the leading product), by carefully conducted experiment, and by a willingness on the part of leading growers to accept and practice such methods as had been demonstrated by experiment and experience to be real improvements.

A Suggestion or Two

Though much progress has been made there remains something for New England farmers. They must use greater care in crop production; they must encourage the coöperative movement in selling, and especially in purchasing supplies; they must study more carefully the question of fertility and keeping up the soil through proper rotation, the wise use of stable manure and commercial fertilizer. In this first principle of agriculture, the study and care of the soil, there is much still to be accomplished. In many instances farmers fail to reap what they should, and this through conditions which they might control. Untold numbers of meadows may be seen on which the land has not been plowed for ten to twenty years. In such instances it should be given a thorough plowing or reseeding; or, better yet, used in a rotation for several seasons with a cultivated crop before reseeding to clover or timothy. Humus for the soil is sadly neglected. This should be provided through the spreading upon the land of plenty of stable manure, and plowing under such crops as clover, rye and buckwheat. New England soils are acid, usually through continued neglect. This requires, among other things, a proper application of lime.

A factor which constructive agriculture in New England must face is the live-stock proposition. Too few animals are kept on the farm. Nothing is equal to live stock to increase

CLYDESDALE STALLION, NATIVE OF MAINE

HOLSTEIN BULL, OWNED IN MASSACHUSETTS

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the productiveness of the soil. More crops to raise more stock to make more fertilizer to raise more crops, is the familiar old school of farming which still enriches both father and son. The average New England farmer keeps only about half the stock he should, and on top of that buys 50 to 90 percent of the feed for these animals. This policy is both unnecessary and is lacking in profit. The situation is shown by the remarkable successes of many who have gone largely into animal husbandry and are raising the feeds on their own farms. New England should grow more fruit, notably apples; winter varieties largely, but some autumn fruit. Untold numbers of apple trees in pasture today bear only cider apples. These should be brought into subjection, grafted with standard sorts, cultivated, pruned and sprayed. Many a farm has a considerable number of such trees. If the owner would thus care for them, give them a little commercial fertilizer in the spring, and spray even once with bordeaux and arsenate of lead, just as the blossoms fall, he would sell $500 to $1000 worth of fruit annually, or perhaps more, where nothing is now received. It is practicable for the farmer with some capital to start a young orchard and take care of it. In the early years of the trees let him raise live stock; the space between the rows will afford opportunity for helpful crops. Peaches prove a profitable crop the third or fourth year after planting, and apples will give a fine return after a somewhat longer period. Every apple tree in an established orchard at least three years old is worth $3, and a ten-year old tree is worth $10. The production of the crop is only half the battle. Raise better stuff, put it up more attractively for the consumer, and then seek the discriminating market which is always glad to pay for such forethought. Coöperative effort among producers is likely to bring a more satisfactory condition. Quite aside from such associated effort, it is possible for the wide-awake farmer to create a reputation for his wares which will place them at a premium in the market.

Soils of New England

The soil is an asset which, beside being the greatest possible asset of New England, will yield dividends in direct ratio to our understanding and utilization of it. It is doubtful if there is any known limit to its productiveness, as a proposition that can be defined and depended upon. Despite the fact that the soil has been the chief support of mankind since man existed, we have but recently begun to know definitely about it; and we do not now know very much that we are able to regard as exact and final. We have looked upon the soil as a nutritive medium for the growth of plants, but this rather crude chemical point of view is extending to a consideration of the soil as the seat of a number of physical processes affecting the supply of heat, air, and water to the plant; and as a complex laboratory in which there are many types of lower organisms working to promote or retard the growth of the plants. We are beginning to realize that we must look upon the soil from a chemical, a physical, and a biological point of view, and also study the liquid medium that circulates in the soil and directly forms the food the plants must have. These processes help to explain, and are vitally affected by, the various tillage operations which have been learned and used in the cultivation of the land, and suggest other processes. The hope of future progress and profit lies, in great measure, in the adaptation for practical ends of these three processes that are always at work in the soil. Add to the knowledge and manipulation of these forces a proper and knowledgable consideration for the climate, and we have the sum of what may be called the new knowledge of the soils, which may be made of the greatest use and benefit to the farmer, and greatly increase both his output and his profits. Farming has generally been conducted in measurable ignorance of the soil, and is now so conducted. It would have astonished and amused our grandfathers to have been told that

it was living organisms in the ground which fitted it to produce crops. It would astonish and amuse the majority of farmers of today. Farmers till the ground for the purpose of raising corn, potatoes, or some other crop. They would regard it as absurd to be told that they must also interest themselves in the cultivation of certain varieties of bacteria, and in the extermination of other varieties of bacteria. Yet that is what we are coming to, and in such considerations is to be found the hope of better crops from the land and better profits for the farmers. To know the land, and to know what to do with and to the land — these seem to be the problems before the farmers of New England today. It is not difficult to know the land, and there are many sources for information as to what to do with the land, when once it is known what the land is. The farmer has to study his land, and then he has only to consider what he will do with it, and the markets within his reach.

The maintenance of soil fertility is a subject far too intricate and full of detail to discuss here. It is also so dependent upon variable and local conditions as to preclude profitable general treatment in small space. Fertility and crop production do not mean the same thing. Fertility is an inherent property of the soil — what the soil is capable of doing under the best possible conditions. Crop production depends only partly upon the fertility of the soil, but more exactly upon the treatment of the soil, seed, climate, the human element, etc.

The whole business of agriculture rests upon the soil. If the farmer does not know the soil he is wasting his opportunities and jeopardizing his earnings. The soil must be considered in two aspects — the quantity it will produce and the quality of that which it produces. To determine these essentials in advance of long and costly experimentation it is necessary to study the soil with reference to its origin, to range it in its proper class; determine if it is sedentary soil, or if it has been transported from some region where its geologic origin must have been quite different; ascertain the kind of rock that has been weathered to form it; its subsoil, etc. When

TYPICAL VALLEY FARM LAND IN NEW ENGLAND

this has been ascertained (which is not a difficult matter), the soil should be subjected to mechanical analysis, to determine its chief constituents and classify it, as sand, clay, limestone, etc., and ascertain the proportion and quality of the humus that has been incorporated in it. This mechanical analysis also shows the texture of the soil, which we must know to determine its density and pore space and estimate its capacity for holding water, and demonstrates for us those exceedingly interesting facts connected with what the scientists call "surface tension" and capillary — which vitally interest the farmer, as they have to do with the question of the moisture in the soil and the power of the soil to retain it. And this mechanical analysis also suggests particular treatment for particular soils with a view to conserve moisture or to deal with excessive moisture, in the way of draining, cultivating, and other manipulation calculated to conserve moisture and aid the soil to overcome the effects of drought or flood. It deals also with the question of the temperature of soils, evaporation, effect of situation and exposure, heat required for growth, early and late soils, and such subjects — all vital for the success of farming operations. Chemical analysis of the soil is not esteemed as able to settle all the questions that arise in the lexicon of the farmer as once it may have been esteemed; but if it is properly made it does show the amount of the elements necessary for the nutrition of the plant existing in the soil, and what must be done to supply the deficiencies revealed. It is now employed more for research purposes than for the practical information of the man actually raising crops. While the identification of the bacteria in soils is the function of biology, the value or harmfulness of the work of the bacteria, in transforming chemical elements for the benefit or damage of the plant, is shown by the chemical analysis; and it deals with most of the problems bearing upon the successful growth of plants, after mechanical analysis has determined the mechanical composition of the soil, and biology has found out what kinds of bacteria inhabit it.

This is general, and applies to soils everywhere. It is of especial importance in New England because the soils of New

England are so varied that it is impossible to classify them. There is liable to be several soil types within the area of one farm; and the adjoining farm may have as many types but none of them identical with the types upon the first farm. There is nothing like knowing the material to be worked with, especially if the total income must come from that material. No manufacturer would attempt to start a factory until he had made a thorough study of the raw material to be wrought into a product that was to be offered for sale. No New England farmer should attempt to raise any kind of crops until he has become familiar with the exact composition and characteristics of the soil he is to rely upon for his crops. This is axiomatic.

The soils of New England produced, in 1899, a total volume of new wealth amounting to $169,523,435. Since that time both the amount of agricultural production and the unit value of the product has increased. The degree of increase can only be shown when the completed figures from the census of 1910 are available.

The soils of New England, as of practically all portions of the United States, constitute the most productive of all of the natural sources of wealth. Because the ownership of the soil is divided into a vast number of small individual holdings the magnitude of the aggregate proceeds from soil sources is rarely appreciated in the business world.

There are two essentials connected with the value of soils which are most frequently overlooked in the consideration of agricultural affairs. First, the soil is the chief source of the fundamental necessities of life — food, clothing and shelter. Second, the soil under even moderately careful methods of tillage is competent to continue the production of these necessities without any diminution from year to year, and, under the best modern methods of agriculture, the production of each individual acre may be profitably increased from generation to generation.

It should be stated at once, as a result of an examination of the soils of the New England states, that they are in no way "worn-out" or exhausted. In fact, only 12 percent of

the total land area, 25 percent of the area in farms, and 63 percent of their improved-land area, is annually cropped. The remainder of the land heritage of New England is marshland, pasture, wood-lot, forest, and mountain slope, never yet subjected to the devastating hand of man, nor called upon, through the wiser methods of progressive farmers, to produce its quota of human sustenance. In all of the New England states there still exist large tracts of land subject to occupation and improvement, and in the more northern states of Maine, New Hampshire and Vermont there are large areas which are as much virgin soil as when the Pilgrims landed on Plymouth Rock. Even the tilled soils of New England, which have been occupied for nearly two and a half centuries, are not exhausted. In too many instances they are merely neglected. Farms whose annual yield is barely sufficient for the support of the farm family are closely contiguous to others whose annual product amounts to hundreds of dollars per acre. In the aggregate statistics of crop production for the United States, the figures for the New England states show that the production per acre of corn in New England exceeds the average for the states of the "corn belt"; that the average yields of potatoes exceed all others except in restricted areas under irrigation; and that wherever New England soils compete their product excels, or at least makes favorable comparison with, that of any other section of the United States. There need be no fear that the soils of New England will fail to respond to proper treatment and to careful tillage. The soil problems of New England are: To find the proper uses for each different soil, to till each acre according to its individual needs, and to produce those crops whose high value per acre will justify the intensive culture which should be bestowed upon land of high value and in close proximity to exceedingly favorable markets.

In order to make a complete and definite statement of the existing and potential soil resources of New England it would be necessary to complete a detailed soil survey of the entire territory. This has never been done. It would require years of continued effort to make such an inventory. Thus, to a

degree, the soil resources of the six New England states still remain unknown. Detailed soil surveys have been made in each of the New England states, covering important agricultural areas and representing conditions over adjoining sections of considerable magnitude. This work has been carried on by the Bureau of Soils of the United States Department of Agriculture since 1899, when the first soil survey of a portion of the Connecticut valley was undertaken. Since that time the original area in this valley has been extended to include all of the land in the Connecticut and Farmington valleys north of Wethersfield, Conn., to the Vermont and New Hampshire lines. In Vermont, an area has been surveyed in the Lake Champlain region; in New Hampshire, surveys have been made of Merrimac county and of the Nashua area, comprising southern Hillsboro county. In Maine, the Caribou area, which covers the important potato-producing section of Aroostook county, and an additional area of about 450 square miles around Bangor and Orono, has been investigated. A soil survey of the entire state of Rhode Island has been completed. Soil surveys of Windham county, Conn., and of Plymouth county, Mass., were made in 1910.[1]

In order to supplement these detailed investigations for the purpose of presenting a general statement of the existing soil resources of the New England states, a rapid reconnaissance of intervening territory was made during the summer of 1910. Only generalized statements of the character, worth and availability of New England soils can be made until the detailed soil surveys have been extended to comprise, at least, representative areas of each of the greater natural subdivisions of New England territory.

The individuality of soils, and consequently the character-

[1] Copies of the following soil survey reports may be secured without charge upon application to the United States Department of Agriculture, Washington, D. C.: Soil Survey of Windham County, Maine. Soil Survey of the Caribou Area, Maine. Soil Survey of the Orono Area, Maine. Soil Survey of Merrimac County, New Hampshire. Soil survey of the Nashua Area, New Hampshire. Soil Survey of the Vergennes Area, Vermont. Soil Survey of the Connecticut Valley, Massachusetts. Soil Survey of Plymouth County, Massachusetts. Soil Survey of Rhode Island. Soil Survey of the Connecticut Valley, Connecticut.

istics and the properties of each, depends upon the source from which each is derived, the processes through which each has passed in its slow formation, and the relationship of each soil to both surface and internal drainage. In other words, the soils are the product of certain geological processes which, when they operate in the same way upon the same classes of rocks, produce the same results. Such identical or closely similar soils, when existing under the same climatic conditions, may be made to produce the same kinds of crops with equal success and in equal profusion. When the properties of a soil are once ascertained, the lessons learned in one locality may be applied in others more or less remote, if there be assurance that the soils, the climate, and the industry of the farming community are similar. All of the soils of New England owe their present character either directly or indirectly to some phase of the great ice invasion which in recent geological times covered the entire territory with a thick continental glacier. This glacier then melted back and still farther modified the soil conditions by the deposition of considerable areas of modified and stratified glacial drift in the lower-lying valley positions. The sea also invaded portions of the present land area and added certain important deposits which now form soils. All of these soils have the common characteristics of having been derived from a variety of different rocks over which the glacier passed and of possessing a complex mineralogical composition. They contain portions of practically all of the common rock-forming minerals, and as a consequence are all well provided with a variety and abundance of mineral plant food. The chief problem in connection with their occupation and tillage is not one of lack of mineral plant food, but rather it lies in securing an abundance of water within the soil during the crop-growing season that the plant food present may be properly prepared and transported to the growing crop.

The eastern and southeastern coast lines of New England rise to low elevations above the sea. It is only along portions of the Maine coast that mountain elevations approach to tidewater. The southern coast of Connecticut and Rhode Island and the eastern coast lines of Massachusetts and New Hamp-

shire are all low and relieved only by headlands of one or two hundred feet elevation. Between these higher elevations are level plains and low valleys, consisting of sandy and loamy terraces upon which the intensive agriculture of Rhode Island and southern Connecticut is carried on. This low coastal region occupies a narrow belt some twenty to thirty miles broad from the New York state line to the vicinity of Portland, Maine. It rises gently inland to the higher elevations of the eastern highland of Massachusetts and Connecticut. Within this region New England agriculture had its inception and has been maintained for over two and a half centuries.

A line drawn irregularly from the Blue Hills, south of Boston, to the northeastern corner of Rhode Island will mark the western limits of the southern extension of this division. From Boston harbor it is continued as a broad crescent past the mouth of the Merrimac river to the vicinity of Portland. In extreme southeastern Maine it again appears in the vicinity of Eastport.

The eastern highland consists of a series of nearly parallel rock ridges extending from near the Connecticut coast northeastward into southern New Hampshire and southeastern Maine. Near the sea, these ridges are low and are interrupted so that they form a chain of hills rather than a mountain range. Farther to the westward the ridges are more nearly continuous, and they rise to greater elevations in succession as the western border of the section is approached.

The Connecticut valley is not primarily a river valley, but a broad basin occupied in part by the present course of the Connecticut river. The stream however leaves the valley near Middletown, Conn., and has cut a steep-sided gorge through the eastern highlands. The rocks of the Connecticut basin differ from those of a majority of the other sections of New England in that they consist of bedded sandstones and shales, with intrusions and sheets of the basaltic rocks which form the mountain ranges within the valley proper. The sandstones and shales are generally red and give a distinct color to the later deposits into which they have been re-worked. The Connecticut river is itself bordered by long, narrow stretches of meadow

land throughout the greater part of its course. The meadows are overflowed from time to time, but are tilled and used for the production of farm crops.

To the west of the valley, the highlands are covered with soils of direct glacial origin, and only in the narrow stream valleys are there any large deposits of stratified glacial drift. The limestone valleys are, on the other hand, floored with the limestone and marble rock, and have considerable accumulations of glacial drift and extensive plains consisting of the same drift re-worked by water and laid down as sand-plains.

In both of the highland areas, there is a considerable proportion of the land surface which is unfitted by reason of its roughness and steep slopes for agricultural occupation. Such land now bears a thin covering of forest or is grown up to brushy soft-woods which have replaced the earlier timber growths.

In general, the soils of the lower elevations along the coast of New England consist of the sorted and stratified outwash materials from the glacial streams. Such deposits rise to altitudes of over one hundred feet along the southern coast of Connecticut, but are interrupted both by rock ledges and by low till-covered hills. In southern Maine the outwash materials give place to distinctly stratified marine deposits, which are heavy clays and silty loams, thus contrasting strongly with the more gravelly and sandy materials of the southern locations.

The higher levels of the coastal region are occupied by low rounded hills of till or of rock, covered by the glacial till. There are also, in the vicinity of Plymouth, Mass., long, rough, stony ridges, made up of sand, gravel and stone, and interspersed with deep depressions and kettle-like hollows.

Throughout the eastern highland the ridges consist of rock either thinly or thickly veneered with glacial deposits. This material, in general, has a close relationship in mineralogical composition to the rock over which it lies, but is also affected by contributions from other rock formations adjoining. The depth of soil covering may vary from a foot or two to a thickness of fifty feet or more. In fact, in single upland fields there

will be outcrops of rock ledges and soil areas where the combined depth of soil and subsoil exceeds fifty feet. There are also in this region small local areas where the glacial waters have deposited local areas of outwash material. Both the lower coastal region and the eastern highlands contain many small lakes and ponds, and nearly all of the larger rivers are bordered by fresh-water swamps and low meadow lands. There are

WELLESLEY FARMS STATION, ON THE BOSTON & ALBANY RAILROAD

also considerable areas of tide-marsh awaiting reclamation near the mouths of the principal rivers and elsewhere along the coast.

The soils of the northern portion of the Connecticut basin consist of low, moist, silty terraces along the immediate stream banks; of brown sandy loams upon the lower terraces; of yellow sandy and gravelly loams upon the higher terraces and in positions where tributary streams have debouched into the main valley. Above these outwash materials there rise low, rounded domes of glacial till whose soils are prevailingly red and are interspersed with large and small fragments of sandstone

and shale. All of the highest elevations consist of the rocky ridges of trap and basalt such as are found in Mount Tom and West Rock. South of the general region of Wethersfield the soils of the Connecticut basin are strongly influenced by the underlying red sandstones and shales and vary in color from Indian red to a light salmon. They consist at the lower elevations of distinctly stratified sandy and gravelly loams, and at the higher elevations of glacial till like that of the low hills of the more northern portion of the valley. The southern portion of the western highland is less rough and more plateau-like than the more northern region, and a larger proportion of its surface is given over to tillage.

The great limestone valley, extending from New Canaan, Conn., to Pittsfield, Mass., and thence past North Adams and Bennington to the Champlain region, is both a notable topographic feature and a distinct soil and agricultural region. Though all of the section has been glaciated, there is a distinct influence exerted upon the soils by the underlying limestones, and a resultant effect is produced in the increased natural fertility of the soils. Even the outwash materials of the southern part of this valley contain a considerable proportion of limestone pebbles and are thus favorably influenced.

All of the major streams of New England have built up their own systems of terraces, on a smaller scale than those of the Connecticut valley, but still comprising in the aggregate thousands of acres of comparatively level and stone-free terrace soils. The Merrimac river, the Concord and its tributaries, the Kennebec and the Penobscot, have all formed greater or less terrace areas. In general, the soils of these terrace areas are a brown sand or sandy loam underlaid by yellow sand and interstratified gravels. Where these terraces are not too porous and leachy they are carefully and profitably farmed.

One of the latest stages of soil formation in New England was a partial submergence of the immediate coast country which gave rise to stiff clays, silt loams, and heavy loams such as are found in the vicinity of Portland, Bangor, Machias, and Eastport, Maine. The surface soils of this group are universally gray to drab, and the subsoils are brown to gray. They

are compact and even too retentive of moisture. Somewhat similar soils extend down the St. Lawrence drainage basin to the Champlain valley and form extensive areas in northwestern Vermont.

The soils of northeastern Maine differ from any which have yet been examined in other portions of the New England states. They have been formed from the glaciation of calcareous rocks and of sandstones and shales. The result has been the formation of fine-grained loams and fine sandy loams which are essentially calcareous. The surface soils are brown and well charged with organic matter, and under the existing climatic conditions these soils have come to possess a national reputation for the production of potatoes.

Such a brief résumé of the soils of New England is inadequate to give any detailed information as to the individual types of soil in any particular section, but it will be seen at a glance that practically all classes and varieties of soil are to be found within the borders of the New England states, and that as a consequence the opportunities for agricultural activity and development are varied and abundant. On account of the variety of soil within its limits it is essential that the further development of New England agriculture be away from the field of general farming toward the more accurate practices of specialized crops, which shall take into account the variety of soils with which each farm of any size is blessed, and which shall utilize to its fullest account the special properties of each particular soil. The segregation of special agricultural industries has just begun in New England. The region had to learn the lesson that upon varied and uneven soils it is not possible to compete with level and uniform prairie areas in the production of the cereal grains and the forage crops. Not even when the average yields per acre exceed those of the prairie states can the New England farmer afford to compete, since his fields are small, not well adapted to the use of power machinery, nor sufficiently uniform in soil to produce the same crop with equal success over even a small field.

Forestry in New England

No question is of greater economic importance in its relation to the future development of New England than forestry. There is no enterprise in which we can embark which offers greater possibilities of establishing permanent prosperity than the clothing of our non-agricultural lands with commercial trees, and the proper conservation of the forests now left to us. From every section of the land come indications of the ever-widening interest taken by people in this important matter.

The economic importance of forestry to New England may be discussed from three standpoints: First, its attractiveness as an investment sure to yield good returns to the investor and also to furnish the timber supply for the future; second, its influence upon the flow of rivers that furnish power to our great manufacturing industries; third, its importance from an esthetic standpoint.

For several years many thinking persons all over the land have viewed with alarm the rapid disappearance of our forests that have, to satisfy the desires of man for immediate gain, been cut and marketed without apparently a thought for the timber supply of the future. As a result of this there are in Massachusetts today approximately one million acres of barren, desolate land now absolutely idle. These acres may again be made to produce timber to the value of millions of dollars. Not only is this true of Massachusetts but similar conditions exist in the other New England states. New England is today one of the great industrial arenas of the world. From the earliest days of our settlement down to the present time the water-powers supplied by the rivers and streams have been utilized, and have been made an important factor in the development of the strength and prosperity of not only the New England states but of the entire country. Any agency which threatens

to destroy or injure them should be looked upon with alarm and speedily eliminated. It has been demonstrated by the greatest engineers in the world that forests play an important rôle in the regulation of rivers. They retain for some time the rainfall and lessen the violence of flood flow. Wherever forests have been destroyed stream-flow has become more irregular and floods have increased in number and violence. So important is it considered to preserve and perpetuate the forests upon the watersheds of the rivers of New England that when the so-called White Mountain Reserve bill was under consideration by the Congressional Committee on Agriculture, scores of men representing our great manufacturing interests appeared before the committee and urged the necessity of prompt and favorable action. Their testimony relative to the consequential damage sure to follow the clearing of the forest growth from these mountain slopes was decidedly startling. It had the support of not only the manufacturers who recognize how essential are the forests to the preservation of the waterpowers that operate the great manufacturing plants of New England, but also of other people from other sections of the country who protested against despoiling the mountains of their grand scenic beauty. That there is a vast economic reason for jealously guarding our scenic heritages in New England is shown by the fact that the state of New Hampshire alone derives a yearly revenue of nearly $10,000,000 from the thousands of visitors who annually throng there to enjoy the natural beauty of its scenery and its invigorating climate. A state thus favored can ill afford to countenance any policy which endangers what may be termed one of its most valuable assets. With the opportunity before us of adding immeasurably to our wealth, it behooves every citizen who has the welfare of New England at heart, and who desires to see it continue to enjoy all the elements of power that have distinguished it in the past, to lend his best endeavors to the promotion and perpetuation of forestry.

The supply or constancy of the flow of water in the rivers is not the only element of importance in the forestry question, and in view of the difference of opinion about that matter, and

the present impossibility of verifying the views of either party; it is perhaps not the most important. The question of the industrial importance of lumber is one about which there can be no two opinions, though in this Professor Moore perceives a certain element of doubt and uncertainty, as he observes that the progress in building indicates that the use of wood will steadily decrease until it will be chiefly employed for ornamentation purposes; and of course when that time comes there will be less demand for lumber and consequently the forests will shrink as an industrial asset. This is a pretty far cry however, and even if we grant that less wood will be used in building operations it is evident that the volume of wood used in the industries and the arts will not on that account be greatly diminished. It is likely to be increased, as when one avenue of consumption is closed several others will surely open. There is nothing in present industrial conditions to justify any fear that the gross consumption of wood will diminish, but there are many considerations which point to the steady increase of its use. The forests are therefore of the greatest industrial importance, and it is evident that for the man who desires to make wise provision for his children no better proposition exists than the utilization of his non-agricultural lands in the planting of commercial trees. Let us suppose, for example, that a farmer, who has a ten-acre lot of absolutely nonproductive land which the assessors value at $4 per acre, plants it with white pine, at a cost of $10 per acre. At the end of forty years he or his children will have 325,000 feet of lumber, valued on the stump at present prices at $2600. These figures of yield are taken from tables prepared under the direction of the state forester of Massachusetts, Prof. F. W. Rane, after an investigation of growing stands made all over the State. Under good forestry management through thinnings and other cuttings this yield could be increased. In the meantime however he will have paid out for taxes, supposing the rate to be $20 per $1000 of the valuation on both land and timber, about $175. His total investment is therefore $285. If he had put this in the savings bank and obtained four percent compound interest on it, at the end of forty years he would have $1368

WHITE PINES FORTY YEARS OLD, IN CARVER, MASS.

to his credit, or about one-half what his woodlot will net him. One must remember also that the farmers' returns are based on the present rate of stumpage. What they will be in forty years no one can accurately forecast, but it is safe to predict that they will be at least double the present price. Stumpage prices in Europe are now two to four times the rate paid in New England. The New England grower of lumber may find a sufficient guaranty against injurious competition in the fact that the freight rate of $20 per thousand feet on pine from the northwestern country renders it impossible for it to be sold at a profit in eastern markets for anything less than $30 per thousand. The freight rates on hard woods used by our manufacturing industries, that are much heavier than pine, are correspondingly high. There is a steadily increasing demand for all forest products, both hard and soft, and the man who has a supply of either will find a ready market at profitable prices. Of course, it is quite obvious that in order to obtain the most satisfactory results every principle of modern forestry must be applied to the management of the land, the growth must be protected from the ravages of insect pests, and every reasonable measure of precaution adopted to prevent fires.

It is difficult to realize what this means as a potential asset for New England. If there are a million acres available for forestry in Massachusetts it is surely conservative to assume that there are two and a half millions in New England. The other states do not give us figures, and we are compelled to estimate. But two and a half million acres is doubtless far under the fact. Let us also assume that the selling price of pine will have doubled in the next forty years, and compute the value of this unused and now worthless land forty years hence, if it could all be planted to pines at once. The timber on it would be worth no less than $1,228,750,000. This is a pretty tidy sum. It is not likely that more than a small proportion of this land will be planted to pine, but it is a gratifying fact that many thousand acres are annually planted. Let us suppose a more supposable case, for example: Suppose that a farmer had 100 acres suitable for pine planting, and planted it in 1910. In

1950 his heirs, or the owners of his farm, will be able to market 3,250,000 feet of pine lumber, which will doubtless be worth $52,000, and the cost to him will have been about $1750, in taxes and labor. In other words, for the expenditure of $44 a year for forty years the man with 100 acres in pine adds $1300 a year to the value of his farm. This is at the rate of about 300 percent. It seems to be quite a profitable business, this business of reclaiming the land that has been cut over for the timber. Even if we concede that there will be no increase in the selling price of pine lumber during the next forty years, it is shown that a man who goes intelligently into reforestation may earn 150 percent on all the money he is obliged to expend. How small the Wall Street profits seem when compared with what the land will yield if properly worked and treated!

The work of reforestation as conducted by State Forester Rane in Massachusetts presents an object lesson of great value and serves to educate landowners to a realization of their opportunities. The state forester stands ready at all times to furnish scientific foresters to examine the forest lands of the State, both public and private, and to give expert advice as to their management. The ultimate aim must be to cut no more from forests than they produce each year, and to make their yearly growth equal to the needs of the people. When this condition has been reached, forestry in New England will have attained the fullest measure of success. During the tree-planting season of 1910 the Massachusetts Forestry department planted nearly 1000 acres of unused land, of which it has become the owner in the name of the Commonwealth, with various kinds of seedlings of the coniferous family. It required nearly 1,000,000 plants to cover the area. Some of these plants were raised at the department's own nurseries and others were imported from France. The expense to the Commonwealth, which is limited by statute, has been about $10,000. This was the second year of the State's real reforestation policy. The work has been reduced to more economical business principles. The average cost, counting the cost of the plants and the cost of labor and supervision, was less than $10 per acre, while the previous year it was a little more. Summing up what has been

accomplished in two years in reforestation work, the State owns about 2000 acres of pine, spruce and ash plantations, which have cost it about $20,000 above the nominal price it has paid for some of the land. By authority if the legislature, the state forester may accept land, or buy at the rate of not more than $5 per acre, on conditions which favor both the original owner and the State. To the owner is reserved the right to buy the property back within ten years for the amount that the State has spent on it, but if there is no reconveyance inside of the ten-year period it becomes the absolute property of the Commonwealth. Data about what has been done in the other New England states is not available, as they do not make their work public through annual reports of the proper officials. Much work is being done in New Hampshire by private owners, and in both New Hampshire and Maine the great paper companies and the railroads are doing a great amount of work, both in the way of actual planting of forests and encouraging private owners to do so. The work is likely to develop rapidly in Massachusetts, as the people of that State are more hospitable to public work paid for out of taxation, as is evidenced by the work of the park, water, sewerage and other commissions.

Commercial forestry is too young in America to have developed actual results that can be used as concrete arguments in favor of the work. We are obliged to reply upon theory or the experience of foreign countries that have been in this respect wiser than we. Germany furnishes the best example now available, and we extract some of the facts about that country from a recent document issued from the Massachusetts Forestry department. The German empire has nearly 35,000,000 acres of forest, of which 31.9 percent belongs to the state, 1.8 percent to the crown, 16.1 percent to communities, 46.5 percent to private persons, 1.6 percent to corporations, and the remainder to institutions and associations. There is a little over three-fifths of an acre of forest for each citizen, and, though 53 cubic feet of wood to the acre are produced in a year, wood imports have increasingly exceeded wood exports for over forty years. German forestry is remarkable in three

WHITE PINE TRANSPLANTS, SIX YEARS AFTER SETTING

ways: It has always led in scientific thoroughness, and now it is working out results with an exactness almost equal to that of the laboratory; it has applied this scientific knowledge with the greatest technical success; and it has solved the problem of securing through a long series of years an increasing forest output and increasing profits at the same time. Like other advanced European countries, Germany felt the pinch of wood shortage a hundred and fifty years ago, and, though this shortage was relieved by the coming of the railroads, which opened new forests, and by the use of coal, which substituted a new fuel for wood, the warning was heeded, and systematic state forestry was begun.

Each state of the German Federation administers its own forests. All of the states practice forestry with success. The results obtained by Prussia and Saxony are particularly interesting, for they show how forests may be kept constantly improving under a system of management which yields a handsome profit. The Prussian forests, covering nearly 7,000,000 acres, are made up much as if we should combine the pineries of the southern states with the forests of some of our middle and central states. When forestry was begun, a great part of them had been injured by mismanagement, much as our forests have been, and the Prussian foresters had to solve the problem of improving the run-down forests out of the returns from those which were still in good condition. The method of management adopted calls for a sustained yield — that is, no more wood is cut than the forest produces. Under this management the growth of the forest, and consequently the amount cut, has risen sharply. In 1830 the yield was 20 cubic feet per acre; in 1865, 24 cubic feet; in 1890, 52 cubic feet; and in 1904, 65 cubic feet. In other words, Prussian forest management has multiplied the rate of production threefold in seventy-five years. And the quality of the product has improved with the quantity. Between 1830 and 1904 the percentage of saw timber rose from 19 percent to 54 percent. The financial returns in Prussia make an even better showing. Net returns per acre in 1850 were 28 cents. In 1865 they were 72 cents; in 1900, $1.58; and in 1904, $2.50. They are now nearly ten

times what they were sixty years ago, and they are increasing more rapidly than ever. In Saxony, which has about 430,000 acres of state forests, the increase of cut under forest management, which always means also a corresponding increase in wood produced, has been nearly as marked as in Prussia. The yield rose 55 percent between 1820 and 1904, and is now 93 cubic feet per acre—greater than that of the Prussian forests. Since the chief wood is spruce, which yields more saw timber than the average of trees making up the Prussian forests, the increase in the percentage of saw timber in Saxony naturally exceeds the increase in Prussia. It increased from 26 percent in 1830 to 66 percent in 1904. The net yearly revenue is $5.30 per acre. The yearly expense is $3 per acre. Other German states, smaller, and with better kinds of timber and better market facilities, secure even higher returns. The forests of Württemberg yield a net annual revenue of nearly $6 per acre, and those of several smaller administrations do even better. A number of the private forests of Germany are managed with great success. As a result of a canvas of 15,600,000 acres of state, municipal, and private forests, it was found that the average net revenue per acre, from good, bad, and indifferent land, was $2.40 a year.

New England Workmen

New England is a reservoir of skilled workmen in several of those branches of manufacture in which the skill amounts to the largest proportion of the cost of production. Not only is this true, and constituting one of the most important of the assets of the section, but there are several attributes of New England men which greatly enhance its importance, as compared with the workmen of some other sections. In New England in a greater degree than elsewhere there persists that characteristic of thoroughness plus knowledge, because it is here that the manufacturing of the country was given its start, and under the now almost extinct apprentice system. This system trained men in all the branches of a craft or a business, as opposed to the present habit of specializing. The old New England machinist could do all the work done in the shop. The new variety of machinist is able to operate a lathe, it may be, or a planer; or he is able to erect the machine after all the parts have been turned out by specialists and assembled in his room. But none of these men are able to go into any department of the shop and make any part of the machine. The old-time New England machinist could do this, and there are many of his breed still extant, and in many parts of New England, and in some of the trades, this comprehensive training still is in force. It is the same in all other trades and crafts. The old-time New England dentist, for example, performed all the work necessary to keep the mouths of his patients in good condition. He extracted, filled, and made the sets of artificial teeth. Now practically none do this. The specialist extracts, the specialist fills, and the specialist makes the artificial sets. Scarcely any, even in the country towns, performs all of these operations. The local dentist examines the patient, sends him to a specialist to have the old teeth extracted, makes the impression for the new set, but

sends the mold to the city specialist to have the teeth made. The printer of today is generally not a printer at all, but a typesetter, a stoneman, a pressman, etc. In the old time, and not so very many years ago, the shoemaker was a man who measured the foot and made the boots or shoes entirely in his own shop, with his own hands, and from stock he had on hand. Now there are no shoemakers, in this sense. The shoe is made by automatic machinery, and the men and women and children who operate the machines know nothing about shoemaking, in the thorough sense their fathers knew about it. They know how to feed the material to the particular machine they have been trained to feed. They cannot cut or fit the stock, nor can they perform any of the subsequent operations after the pieces have left their bench or stand.

This is a necessary condition. It prevails in New England as elsewhere. But in New England the condition is ameliorated by the fact that here there is a greater percentage of workmen who were educated in the old thorough manner and who do know the trade at which they work. They are obliged to stand and feed the automatic machines, even as do the younger and less well-trained operatives, but it is certain that there is that in their work which gives it a definite value. The man who knows how to make the whole shoe can run the pegging machine or the sewing machine or the treeing machine better than can the man who only knows how to run the one machine. The man who is a printer, and can do any and all of the various kinds of work that go into the finished piece, is a better compositor than the man or girl who only knows the monotype or the linotype keyboard.

In all the trades there is still existing in New England a certain generous modicum of this superior skill and efficiency in the trades, and the predisposition to continue to train the young to the broader craftsmanship is more evident here than elsewhere. This is one of the items of value that we are possessed of which means much to the manufacturers in the way of dividends as well as in the way of quality of goods. It is not likely that this disposition to qualify in a broad and fundamental way will diminish. It is likely to increase. The

tendency in the industrial world is toward better training. This tendency is as much in evidence in other sections as in New England, as a proposition. It is as a matter of fact much more vital in New England than elsewhere because it so perfectly harmonizes with our historical and hereditary instincts and habits. It is deeply seated here because it was here that most of the industries had their birth and achieved their adolescence.

Another very important racial advantage that the workmen of New England offer to the shrewd manufacturer is their inveterate love for their own homes. It is a very manifest article of the social creed of the New Englander that he must try to own his home. The roof that is secured by a quit-claim or warranty deed is far superior to the roof secured merely by the payment of the monthly rent. No one who has not been brought up a New Englander knows how strong is this instinct. It is ingrained in our very nature. It does not matter that the owned house costs more to maintain than the rent of one as good in all particulars, as is very frequently the fact. It does not matter that the owning of the home involves years of the most rigid economy, the denial of all kinds of relaxation and luxury, the stunting of life in all directions, the dwarfing of the children's education and life, the narrowing of all the amenities and the squeezing of the spirit. The home must be had, and had it is. It is not always that the desire for a home becomes such a moloch; but that it may, and often does, does not operate to check the passion for possession that is such a marked New England trait. Whatever may be the sociological, the ethical, the religious, significance of this passion to own homes, there can be no question about its being a great industrial asset to New England. The man who owns a home, or who hopes to own a home, is a stable proposition as an operative. This is one of those manufacturing advantages that is not quite susceptible of definite valuation, but it is being carefully considered by men who are operating to take full advantage of whatever elements in industrial communities promise sure if slowly maturing profit-bringing. And the manufacturer who is skilled in the refinements of his business knows that when he promotes this home-getting

HALE AND PERO PEACH ORCHARD, CONNECTICUT--TWO-YEAR-OLD TREE

instinct in his workmen, and makes it easy for them to anchor themselves to the soil, he is transferring some appreciable portion of his cost of manufacture to the land. He may not consider this habit of owning homes as an element that can be recognized in the adjustment of his wage schedules, but he is nevertheless a recipient of some of the benefit. The factory operative who is able to own his home, and a patch of garden land in addition, is a different operative from the man who lives in the mill tenements and is obliged to buy all of his supplies, and possibly at the mill stores. The workman who gives such hostages to fortune as are represented by his home and his garden is not the man to trifle with labor conditions. He needs stable conditions, and that need leads him to be careful of his chances of employment, and sometimes to consider the rights and difficulties of the manufacturer, who he realizes is taking chances quite similar to those that have now and again caused him sleepless nights, although upon a vastly larger scale. This condition of home-earning is a large element in the efficiency of workmen, and it tends strongly and directly to increased production per unit of wage. It is not always a negligible element in the fixing of the wage scale, despite the fact that the more enlightened, and we may safely say the more shrewd, manufacturers are content to let the workman have the visible advantage and accept for his share the less tangible but really far more consequential benefit coming from the increased efficiency of the home-owners.

There are in various sections of New England areas of intensive trades cultivation which has been going on for several generations and which furnish facilities for certain lines of manufacture that are unique. In fine textiles there is nowhere facilities for skilled operatives equal to those offered at Manchester, Lowell, Providence and the Blackstone Valley, and in other towns and cities. The valley of the Blackstone and the valley of the Merrimac teem with these skilled workmen, and they are found at Clinton and North Adams, and in many localities in Connecticut, Massachusetts and New Hampshire, while Rhode Island is full of them in all directions. In several lines of metal working and machinery and tool making there

may be found at several points a supply of trained workmen who do not owe their skill wholly to their own training, but partially to inheritance and the influence of their fathers and grandfathers all through their adolescence. They were born into the trades they have always followed, and have a certain skill and ability that is often thus acquired but not always resulting from personal training. The same may be said of other industries, notably of the shoe and leather business. The shoe business has spread to the Middle West, as it naturally must be expected to. The raw material is largely produced in that section and beyond, and a large proportion of the shoes produced in New England are yet shipped westward. There is therefore the best of economic reasons for a certain portion of the shoemaking business to find its way out of New England. The flaw in the argument is found in the lack of skilled workmen in other sections. This has, in a degree, been overcome by the migration of some New England shoemakers to the cities where the industry has been transplanted. While there are several large establishments in the large cities of the West, from which merchandise is largely distributed, there is no general tendency in the trade to shift the center of commercial production. On the other hand, there is a significant drift back to New England of the shoe trade of the West. At least one of the largest distributors of shoes in the country, whose headquarters are in Chicago, has brought all its manufacturing back to New England, for the identical reasons set forth in this chapter — to secure stable labor conditions, and to avail itself of the stored shoemaking facility of the New England shoemakers. It would be easy to cite like conditions to those mentioned as applying in several other trades. In some of them it appears that there is what amounts to an unemployed workman power which might well be put to very profitable use. In the woodworking trades there has been an unwarranted drift away from New England, due, it is to be presumed, to the exhaustion of the supply of lumber in New England, and to the failure to reckon the worth of the workman asset. This drift has been going on for so long a time that there has now been created a skilled labor

supply at or near the raw material supply; and the skilled labor supply in New England has deteriorated, through death and the gradual assimilation of the workmen by other occupations. But there is a large body of these operatives that might be profitably employed at the trade they know best. And conditions have been so changing that it is again within the sphere of good business to consider whether woodworking may not be resuscitated in New England. The like may be said of certain iron industries. There are iron mines in New England that have paid for working. The men who were trained in the initial iron trades have pretty well disappeared, but there would some of them probably be found in the regions of the old mines.

Mingled with the influence of ancestry, tradition, education, religion, and the other elements that go to give the New England workman his distinction, there is the powerful influence of climate, the maligned New England climate, which is contemned and slandered, and which draws millions of cash out of the pockets of the men who have learned to justly appraise it for the privilege of enjoying a few weeks in it during each year. The effect of climate on character may not have become one of the studies of men who are establishing factories and building industries, but it is worth while. Climate radically affects character, and character and physique are at the bottom of good workmen. There has not yet arisen the workman who is, all things fairly considered, the equal of the native New Englander. The climate has made him what he is. There are regions that have better winter climate than New England, and there are sections that boast better summer climate; but there are no regions in America that have year-'round climate equal to that of New England, for pleasure or for the building of a race of workmen equal to the economic demands made upon them. This is an assertion easy to make, and perhaps not so easy to prove. If proof is needed it is furnished by history. This section of New England, a small bit of the country set off in its northeast corner, has for all the time since the landing of the Pilgrims given of its hardy sons the men who have built up the whole country, and

is at this present time giving an almost undiminished stream of the brawn and brain that is developing the vast resources of the land. Not only this: New England has all the time been absorbing the dwarfed and anæmic flood from Europe and Asia and has vitalized that alien blood until it is almost on a par with the native stream. This is a performance that is unique in history, and it deserves much more attention than it has received at the hands of the men of science who are prone to find a logical and analytic reason for whatever phenomenon they observe. What is it in New England that takes the dregs of Europe and makes not only good citizenship of it but makes of it good physical manhood? It is not all climate, but it is the climate that begins the work and furnishes the human caloric for its continuance.

The respect for religion which obtains in New England, the veneration for education and culture, the traditional bent for esthetics, for ethics, for sociology, for science, for self-culture, for economy, for thrift, all tend, and strongly tend, to give our workmen value to employers, and what is perhaps more essential in an industrial sense, these things give the workmen a disposition to give of their capacity the fair equivalent for the wages they receive. A thorough and scientific study of the New England workman would reveal other grounds for claiming for him that superiority he has always held, and would make it more evident that the causes here indicated are worthy the attention of the large employers of labor when they have before them the great question of the most economical methods and the most advantageous locations for their manufactories.

The Industrial Boston

This is not a "boom" story. Neither is it to be a tedious, involved, statistical study. Superlatives seldom convince the discriminating reader, and pages of figures, compiled for a purpose, weary him. A loud noise and much kicking up of dust will not command the attention of serious-minded people; neither will the laborious piling up of facts as to its own exceeding excellence profit a city much, because few study the facts.

Boston does not need publicity of either sort. Its resources are so extensive, and its possibilities so unmistakable that a plain, unvarnished statement of them is sufficient to insure their recognition. But one thing which is needed, and that imperatively, is a correct and adequate conception as to what constitutes the real Boston, commercially, industrially, territorially. Lack of understanding on this point, failure to appreciate the true extent and magnitude of the city in a business sense, is largely responsible for the inadequate and frequently misleading estimate of its industrial and commercial advantages which unfortunately has begun to prevail in certain quarters. Secure in the sense of conscious strength, justly proud of a century-long record of splendid economic achievement, and a bit too indifferent to the opinion of the rest of the country on the matter, Boston has not asserted its opportunities and proclaimed its progress vigorously enough to command the recognition which is justly its. Until the facts are known, and an accurate basis for estimate laid down, even the most moderate and conservative statement of the city's assets would seem exaggerated and overdrawn. The prime purpose of this chapter, therefore, is to show forth the business Boston in its true proportions. Once these proportions are clearly seen, and taken as the groundwork for discussion as to business opportunities hereabouts, there will no

longer be occasion to fear comparison with rival cities. The sober facts as to the economic situation in Greater Boston are sufficient to assure conviction as to the unquestionable openings for yet greater industrial and commercial endeavor which that region affords.

A prominent local merchant, whose business necessitates his traveling widely in other states and who observes keenly the while, tells the following anecdote, which well illustrates the curiously inadequate and pernicious notion regarding Boston's importance as a trading and producing center that has gained currency in other parts of the country, because little has been done to combat it. While in Chicago this merchant fell into conversation with a business acquaintance, a resident of that city, and the talk drifted into comparisons of the advantages of the leading business centers. The Chicagoan was soon in the midst of a glowing eulogy on the splendid past achievements and the matchless future possibilities of the prairie city, dwelling long on its physical size, the increase of its population, the progress of its industries, and the growth in the volume of its trade. Presently he noticed that his companion did not display any considerable amount of surprise at the astounding recital; in fact, while appreciative, was by no means overwhelmed by it. Nettled a little because the tale, justly dear to his heart, had failed to produce its wonted impression and evoke the usual succession of envious and admiring comments, he assumed an air of slight condescension and remarked, "Of course you have a fine little city in Boston — historic associations, fine educational opportunities, delightful place to visit; but you must admit you are not in the same class with us when it comes to producing and purchasing power, industrial energy, and all that."

Then the Chicagoan got the surprise of his life. First incredulous, then amazed, and finally convinced and chastened, he heard for the first time the story of "Greater Boston," — the real Boston for purposes of all the comparisons which he himself had been making. He heard with astonishment that around the shores of Boston harbor and extending miles inland there had grown up a vast, continuous, homogeneous

community, numbering a million and a half souls, and more closely bound together by business interests and an extensive and efficient system of rapid transit than the irregular city distributed over the whole of Cook county, Illinois. The Bostonian, like many of his kind, was a student of history as well as a successful man of business, and the tale which enlightened his western friend and gave him a new, bigger and better conception of the great city which he had tolerantly termed "Boston town," ran somewhat as follows:

Cities in the middle ages were small affairs. Hemmed in by defensive walls, their scope for expansion was limited. Yet even in this unsettled period the regions round about the walled towns were peopled and cultivated, the population without the walls shading off by degrees into the sparsely settled country districts. Then came gun-powder and demolished the cramping girdles of stone. Changes in industrial organization; an increase in productive efficiency hastened the growth of population and led to a greater degree of concentration. Highways were improved; travel and transportation facilitated. People found it easier to move about, and the towns and cities grew apace. Then came the steam-railroad, followed by local rapid transit and the trolley lines, and the modern city expanded and extended itself like a mushroom in the night. This amazing urban growth has been one of the marvels of the century just closed.

The newer cities and many of the old ones pushed out their boundaries to include within their corporate limits the astounding expansion which recked little of political or municipal lines but flowed wherever topography and natural advantages of soil and situation favored. Others of the older cities, chief among them Boston, enlarged their area but slowly, and consequently failed to furnish accommodation for the swelling volume of trade and production created by the rapidly growing population, which accordingly burst the restricted confines of the city proper and spread over the surrounding districts. The reasons for the city's failure to enlarge its physical limits are not far to seek.

The whole region, some five hundred square miles in extent,

now roughly included in the term Metropolitan Boston, was originally dotted with separate little communities, each a political unit in itself. These grew in population, extended till their boundaries coalesced, and in time came to cover the entire region lying round about the central harbor, the heart of Greater Boston, and the business core of the wide radial zone lying about and tributary to the city proper.

Each of these towns as it expanded also gradually developed and built up a separate corporate existence, and a body of social and political tradition which have caused it to persist as a distinct political entity, in spite of the fact that this whole section of the state has since been so thickly peopled and so closely knit together by transportation connections and community of commercial and industrial interests as to become practically one great expanded city with a population of nearly a million and a half, and a purchasing and producing power, in proportion to population, exceeding that of any similar region in the country.

This persistence of the smaller cities and towns surrounding Boston, as independent communities, though commercially, industrially and territorially they are virtually constituent parts of one broad and homogeneous city area, has physically circumscribed the municipal Boston, and made impossible further extension of its limits, to a degree that would enable it to include the field within which the interests and activities of which it is the center exist and are carried on. What has been the result? Unable to provide scope within its own boundaries for the constantly swelling volume of industry and trade, initiated in the first instance by the advantages afforded by its harbor and railroad facilities, the city has been forced to watch the tide spread out over the surrounding districts, and see itself given an artificially low rating in government reports, while New York, Chicago, Philadelphia, St. Louis and the other large cities which compete with Boston in size and economic activity, have loomed large in the census returns, because they have technically brought within their corporate limits large areas as yet only partially developed and capable of sustaining a considerable future expansion of population and

production. As a consequence of these restricted boundaries, which give it an area of only thirty-eight square miles, Boston has been forced to see her expansion in population, commerce and industry — just as homogeneous as that of its sister cities and just as closely linked up with the city proper — chopped up into little chunks in official reports and distributed among two score cities and towns immediately surrounding it but so merged with the Greater Boston district as to be physically indistinguishable as independent communities. The country at large, basing its estimate of Boston's size and business importance upon census reports concerning the political unit only, and knowing little or nothing of the situation and interrelation of the cities and towns in the metropolitan district, and the substantial unity of that region commercially and industrially, has gained a wholly inadequate impression of the city's real extent and importance as a population and business center. It is true that some other cities have had the same experience, but not in a like degree. Boston furnishes, far and away, the most striking example, and has accordingly been most inadequately judged and rated.

Obviously, this is a condition that must be recognized and understood in any attempt to state fairly and accurately Boston's resources and advantages. Insistence upon the enlarged conception of a Greater Boston as the only just basis upon which to reckon the city's economic assets will more than anything else enlighten business men the country over as to the striking opportunities, industrial and commercial, here presented, and will gain for Boston that acknowledgment and appreciation of its splendid economic achievements which is its just due. Our sister cities do not spare the colors in painting their advantages and prospects. Certainly, we are warranted in claiming that measure of recognition which is rightfully ours but which has been withheld by reason of lack of clear understanding as to the real situation.

Like the Chicagoan, when the Boston merchant had finished his tale of the real Boston, we are now prepared to examine and correctly interpret the significant and striking facts as

to Greater Boston of concern to the merchant and the manufacturer, the home-seeker and the traveler in search of pleasure and scenes of interest.

Boston proper is predominantly commercial, and has always been so. Situated on one of the finest natural harbors in the world, 180 miles nearer the ports of western Europe than New York, she has long been the *entrepôt* of the whole New England region, and the market and outlet for much of the vast production of the West and Northwest. Ever since the days when the China trade crowded her wharves with tea-chests and the rare products of the East, days when the Yankee clipper ship was the acknowledged mistress of the seas and the Yankee sailors the best seamen afloat, the marts of Boston have been famed the world over. Its merchants bought and sold the wares of every clime and continent. Its warehouses supplied the wants of the whole of New England, and ministered to the needs of people of every condition all over the wide West.

Later developments but augmented this importance as a great market and distributing point. When steam, driving vessels of larger tonnage and deeper draught, had emancipated ocean commerce from the vagaries of wind and weather, the new and greater ocean carriers found in the broad, deep channels of Boston Harbor anchorage and dock accommodations equaled by few ports in the world. With the advent of steam-railways, Boston became the converging point of the entire New England system. And finally, when the trolley net began to grow, its steel meshes were woven thickest about the population and commercial center, the metropolis of the region. A glance at a steam and electric railway map of New England today will show a dense maze of rail lines crowding and crossing one another as they run together in the Greater Boston district and focus on the city, then untangle and spread out in all directions over the State. Nature in the beginning made Boston the focal point and future metropolis of New England. Later developments have but established this position more securely.

We may now proceed to examine more closely into the conditions which spell Opportunity for the merchant in Boston, and which demonstrate the city's importance as the seat of a great mercantile activity. Considerations that would influence the wholesaler or jobber in his choice of a place to locate and do business would be: (1) local market conditions, (2) access to wider markets, (3) relation to sources of productions and supply, and (4) trade traditions.

The local market to which the wholesaler situated in Boston has access is of tremendous extent and purchasing power. No more serious miscalculation could be made than to suppose that the 670,000 odd persons who reside in Boston proper constitute the bulk of the buying community. Within what is loosely termed the metropolitan district, a region roughly within a dozen miles of the State House and thickly and continuously populated throughout, live about a million and a half people. In practically none of the cities and towns in this district are there to be found large mercantile establishments, either wholesale or retail, or any considerable centers of trading activity, other than the smaller stores and shops which always abound. This virtual absence of mercantile activity on an extensive scale in cities, some of which boast from twenty-five to one hundred thousand inhabitants, shows conclusively that in a commercial sense these communities are as closely identified with Boston as if they were politically incorporated within its limits. This great metropolitan area, furthermore, is closely knit together by a steam and electric suburban service than which there is none better in the country.

Boston and vicinity has long been known as a region whose residents enjoy a much greater degree of material well-being than prevails generally. The standard of living is high, and the population possesses the means to maintain that standard. By the best estimates available, the per capita wealth of Greater Boston is larger than that of any similar region in the world, exceeding that of most of the other large cities of the country by wide margins. Brookline, a contiguous suburb of Boston proper, is often quoted as the wealthiest commu-

nity of its size in the world. While the aggregate wealth of the Greater Boston district is large, it is also more evenly distributed than is commonly the case. There are few colossal fortunes but many substantial ones, and a great body of people in the middle classes enjoying moderate but comfortable incomes. The wage-earners are also, as a class, relatively more skilled and better paid than in most other great urban districts. The high per capita wealth and the relatively large earning power of the population, together with the high standard of comfort that prevails, evidence a volume of purchasing power of remarkable extent and stability. It has been reckoned by those qualified to pass judgment that the Greater Boston region possesses a buying and consuming power normally wielded by a population of two millions of people in other sections of the country, the actual population of the district being 25 percent under that figure. So much for the local market, a field wide enough to furnish ample opportunity and scope for the most ambitious mercantile enterprise.

Easy access to wider markets is also afforded the merchant with headquarters in Boston. Within a fifty-mile radius dwell more than three millions of people. In New England as a whole, closely linked with the metropolis by the three great converging railroad systems whose close network of lines reach every village and town of consequence, live more than six millions of people, the bulk of whose wants are supplied through the activities of Boston mercantile houses. The very isolation of New England, the physical barriers which have marked off and set it apart as a distinct geographical section of the country, have only confirmed the decree of nature writ in its harbor, that Boston should be the commercial heart of this territorial unit; and not once has this decree been questioned, because it was founded on advantages indisputable and a development unequaled.

But this preëminence in the home field has in no sense hindered the Boston merchants from reaching out for control of wider markets. The facilities for water-transportation afforded by the twenty-odd steamship lines whose vessels dock regularly at Boston, have made it the second port of the

country as regards value of imports, which in 1909 reached a total of over $127,000,000. In the total import and export trade, which in 1909 amounted in round numbers to $200,000,000, Boston took third rank. Merchants, profiting by the low water rates to coastal points, have been enabled to establish along the seaboard distributing agencies through which they have gained control of trade in neighboring and tributary regions. The advantages to houses doing an importing and exporting business of location in a port like Boston need no comment.

However, it may be said that a healthy dissatisfaction, indicative of enterprise and business vigor, has been growing of late with regard to the dock and water terminal facilities of the city. As a result of this, plans for far reaching improvements along the water front, looking to the modernizing and enlarging of docks and the bettering of methods for handling cargoes, have already been adopted, and substantial appropriations, extending over a period of years, have been provided for putting these plans into effect. Public sentiment has demanded with unmistakable vigor and directness that the engineering feature of the port be made commensurate with the splendid natural advantages of the harbor. Unless unforeseen obstacles arise, another decade should see Boston one of the best equipped ports in the world, with an export trade fed by the great industrial hinterland, reaching every nation on the globe.

But the seaboard territory reached by water-carriage is by no means the most important market outside of New England. To the West, far West, Northwest, and South, railroad rates from Boston are the same as those from New York. Contrary to the popular impression, too, the grades on the railroads which top the Berkshires and connect Boston with the West are lower than on the trunk lines which join Philadelphia and Baltimore with the trans-Alleghany region and the markets of the vast Mississippi valley. If projects now afoot are realized, and there is good reason for believing they will be, Boston will one day become the gateway to Europe for the large and swelling production of the Northwest, both

of the United States and Canada. A destiny so obvious can hardly fail of realization.

Close contact with the sources of production and supply in many of the great staple trades is afforded the merchant in Boston by reason of his location in the heart of what is admittedly the most highly developed industrial section of the whole country. As a great primary market and distributing point for leather, boots and shoes, wool, textiles, rubber products, chocolate and confectionery, the city's standing is widely recognized. With the State producing nearly one-half the boot and shoe output of the country, nearly one-third the woolen and worsted goods, more than a quarter of the cotton goods, and over a fifth of the rubber and elastic goods, the importance of Boston as a market and distributing center for these great staple products is easily seen. A host of minor industries, many of them with a very large volume of production, find in Boston an outlet and clearing-house for their output.

The extent to which the city is the market for the huge and varied production of the highly developed New England industrial region is indicated by the fact that the volume of trading, wholesale and retail, in Boston is about five times the value of the city's own industrial product, which is in the neighborhood of $200,000,000 annually. This would give a yearly volume of exchanges aggregating roughly one billion dollars. In practically every other large city of the State the value of goods manufactured exceeds the value of goods bought and sold by wide margins, the production of these localities being sent to the commercial center of the region. The significance of this as showing the commanding position which Boston holds as the primary market of middle New England is unmistakable.

Trade traditions of the right kind are a real asset to any city so fortunate as to possess them. Merchants carefully reckon the value of such traditions in their calculations as to the relative advantages of cities as headquarters for mercantile business. The Boston merchant has been a national figure since colonial times. His activities have everywhere played a

leading part in upbuilding the trade of the nation. And throughout it all, with strikingly few exceptions, Boston firms have won and held a reputation for fair-dealing, stability and sound enterprise, that has gone far to give the city its proud place in the mercantile world. Then, too, there is a suggestion of "all wool and a yard wide" quality about the very name of Boston, the cumulative result of past policy in providing honest values, that gives the average buyer confidence in purchasing goods bearing the Boston trade-mark.

Our considerations thus far have dealt more particularly with the advantages which Boston offers in the wholesale, jobbing, import and export, trades. Many of the advantages cited with reference to these fields apply with equal force to the retail trade. It is sufficient on this point to repeat that the retailer in Boston can calculate on a local market with a possible buying power equal to that normally wielded by more than a million and a half people. A highly developed and low-fare system of local transit — steam, electric, elevated and subway — focuses this enormous volume of purchasing power largely on the shopping districts of Boston proper. Any one who has ever attempted to make his way along Washington street on a fine Saturday afternoon can have no further doubts as to the opportunity in the retail field which Boston presents.

Industrial Boston, like commercial Boston, is far wider in extent than is generally supposed. Figures as to the city proper give only a superficial and incomplete idea of the real importance of the community as a manufacturing center. A Federal Census Bulletin (No. 101) issued in 1909, and entitled "Industrial Districts," contains the following statement, which constitutes a recognition of the unity of the Greater Boston industrial district by the census authorities:

"Certain suburban towns and cities connected with Boston by trolleys and steam-roads are so closely allied industrially that it seems proper to consider them a part of the industrial district of which Boston is the center."

The bulletin then goes on to enumerate forty-three cities

and towns, comprising an area of about 500 square miles and a population of over 1,354,000 in 1905, estimated at about 1,500,000 today, as included within the Boston industrial district here defined. These communities are territorially continuous and intimately knit together by commercial and financial ties and identity of business interests of every sort. They make one great, homogeneous, industrial area. Similar districts are outlined for twelve other leading manufacturing cities of the country, and a study of the comparisons thus made possible reveal some startling and highly encouraging facts as to the industrial situation in and around Boston.

Any attempt systematically to describe the conditions with regard to industries in a region must take account (1) of the volume of production, (2) of the character of production, and (3) of the rate of industrial increase.

Among the thirteen districts considered — the largest in the country — Boston ranks fourth as regards total value of manufactured products in 1905, the figures showing an annual volume of production only a little short of half a billion. The districts ranking Boston in respect to value of product were those about New York, Chicago and Philadelphia, cities whose populations were from three to ten times greater than that of Boston, a proportion by no means equaled in the value of products. The city areas selected for purposes of this study were chosen by the Census Bureau with the idea of making them as comparable as possible; those about Chicago, Philadelphia and Boston, being almost identical in extent. This, in a measure, worked to the disadvantage of Boston in the comparisons, because, while in the case of the sister cities the districts defined really marked the limits of the industrial zones of which they were the centers, the country beyond shading off quickly into farming sections, around Boston the zone of industrial activity extends solidly for many miles further. An extension of ten miles in the radii of the districts would have enormously cut down the lead in the value of manufactured product enjoyed by the other cities by reason of their greater size. The significance of all this is in showing the wider reach and greater continu-

ity of the manufacturing region of which Boston is the center. With this important reservation in mind, then, we may conclude that as regards volume of production Boston ranks fourth among the great industrial centers of the country. The city proper, with its restricted area of thirty-eight square miles, took fifth rank, being surpassed by St. Louis as well as by the other three cities mentioned. In the production of her whole industrial district however St. Louis showed a value hardly two-thirds that of the Boston district.

As regards quality of production, the industrial district of Greater Boston probably ranks first in the country. An enumeration of the leading industries would include: Boots and shoes, cut stock and findings, leather, rubber products, slaughtering and meat packing, printing and publishing, foundry and machine shop products, wool, clothing, textiles, electrical machinery and supplies. Other industries of great importance are chocolate and cocoa products, shipbuilding, iron and steel, sugar and molasses refining, watches, machinery, etc. All of these minister to fundamental human needs. They are staple in character, and most of them demand a highly skilled grade of labor and a degree of financial support and ability in management that puts them in the class of high-grade industries.

It should be noted in this connection that the tendency operative throughout the industries of the State, as well as in Boston, is distinctly toward a superior quality of production. Massachusetts and New England, remote as they are from the sources of raw materials and of fuel supply, cannot compete with manufacturing centers in the South and West in the production of low-grade commodities, the bulk of whose value lies in the material they contain and not in the manipulation and fabrication they undergo. Such commodities represent only a low-labor cost. The proportion of industrial intelligence and skill which has entered into their designing and production is relatively small. But these two qualities, the product of what might be termed human resources, constitute two of the most important industrial assets of Massachusetts. Assets they are, too, most difficult to duplicate elsewhere. They

are the result of a century of industrial experience, and the advantages which the momentum of an early start in manufacturing pursuits has given us. In an estimate of industrial resources, they must be reckoned of even more account than proximity to supplies of raw materials or to markets, an advantage which every improvement in transportation has lessened and which has never been decisive, as witness the great cotton industry of England, thousands of miles from the nearest cotton field and still vigorous, flourishing and expanding. Obviously, the industrial policy which will enable our manufacturers to profit most fully from this advantage, to avail themselves most completely of the splendid human resources created during a century in this region, and at the same time overcome the disadvantage of our geographical location and the dearth of mineral wealth, is one which will aim at an increasingly higher quality of product, a product that will incorporate a very large amount of value in comparatively small bulk and so be easy of transportation to distant markets. A significant and encouraging feature of the industrial situation in the State during the past decade has been the fact that during a period of most remarkable progress and expansion of all industries the heaviest advances were made in those fields where the production is of the highest grade. In some instances this advance has been at an accelerated rate, growing more rapid each year.

Boston's labor supply is her most valuable industrial resource. This fact, and the advantage which it confers, is generally recognized throughout the country. The population census of 1905 shows 60,856 males and 23,170 females, a total of 84,026 persons, or about one-seventh of the total population, reporting themselves as engaged in manufacturing pursuits in Boston. These figures apply only to purely industrial occupations, and do not include unskilled laborers or persons engaged in trade, transportation, fisheries, agriculture, or mining. The possible labor supply that can be drawn upon by local industries is much larger. Within the fourteen cities and towns contiguous to Boston, and industrially a part of it, there were 56,552 persons returned as en-

gaged in manufacturing pursuits in 1905. In the fifteen cities and towns not contiguous to Boston proper, but in the metropolitan district, 50,470 persons reported themselves as in manufacturing pursuits in 1905. Within the Greater Boston industrial district then, the region largely within a twelve-mile radius of the State House, there were in the last census year nearly a quarter of a million persons earning their livelihood by employment in industries. In view of the extraordinary industrial growth in this region, to be noted later, it is reasonable to assume that the laboring population has been largely augumented during the past five years. This opinion is supported by the fact that in the period of 1900–1905 the industrial population of the Greater Boston district increased over 20 percent. If this rate has continued, and there is good reason for thinking it has actually been accelerated, the labor supply of the district today should be close to one-third of a million workers. Within this vast industrial army will be found men and women possessing almost every kind of manual skill required in the complex industries of today. The manufacturer who locates in the Greater Boston district will always find within easy access an abundant and elastic labor supply capable of adapting itself quickly and surely to his every need.

The opportunity afforded the laborer in Boston for securing a general educational training and a vocational equipment is unsurpassed anywhere in the country. The educational authorities of the State and of the city have recognized the importance of developing to the utmost our human resources — the intelligence and skill of our industrial workers. To this end far-reaching plans are now in the making for a comprehensive and thorough-going system of industrial and commercial schools, which shall conserve and further develop the advantage which the alert brains and deft fingers of our work-people have created. The State Board of Education, reorganized a year ago along lines best calculated to secure efficiency in working out promptly and effectively a scheme of industrial and commercial training, has already made a beginning in its important task, and the future prom-

ises rapid developments. The experience of Germany shows strikingly what may be accomplished for the furtherance of industry and trade through a wise system of public instruction, carefully adjusted to the economic needs of the community. Massachusetts bids fair to repeat this experience, and Boston will naturally be in the forefront of the movement.

We have now arrived at the consideration of what is perhaps the most striking, significant, and encouraging, feature of the local industrial situation. This consideration has to do with the rate of progress made by industries within the district, as measured by the increase in the value of their product. Among the five leading industrial districts of the country — those lying about New York, Chicago, Philadelphia, Boston and Pittsburg — the Boston district ranked second as regards the rate of increase in the value of the product of its industries during the period 1900–1905, being exceeded by New York alone. This single fact is conclusive evidence of the splendid vitality, expanding power, and sound enterprise, that have always characterized Boston's industries in the past, and will continue to characterize them in the future.

That changes have been going on in the local industrial field, that there has been a shifting and readjustment of industrial activities, a movement to the suburbs and an abandonment of old industrial centers within the city proper, is not denied. But that this tendency is something to become alarmed over, and proclaimed as an ominous symptom, is a wholly wrong construction to put on the situation. For consider that in the five-year period 1900–1905 the value of the output of industries within the Greater Boston district increased 29.2 percent. During the same period the increase for the Chicago district was 20.4 percent, for the Philadelphia district 16.3 percent, and for the Pittsburg district 12.8 percent. The comparison with Chicago and Philadelphia is especially significant, as the districts for those cities are practically indentical in size with that of Boston, each of them being about 500 square miles in extent. Chicago, probably more than any other city, with the exception of New

York, is associated throughout the country generally with astounding progress; resistless, overleaping expansion in industry and trade. And yet the product of Chicago's industrial district increased in value during the period under consideration only about two-thirds as fast as the product of the Boston district. This fact has to be mulled over a bit before its full import is grasped. Philadelphia showed an increase only little more than half, and Pittsburg one less than half, that of Boston, whose advance was exceeded by the scant margin of 3½ percent by New York alone.

To be sure, Boston proper during the period 1900–1905 showed an increase of only 13.3 percent in the volume of manufactured output, while the Greater Boston district, outside of the thirty-eight square miles of the political unit at the center, made the astounding advance of 42.7 percent. As asserted before, this indicates not a decline but rather a shifting of industry to regions a little further out, where the prices of land and the rental of plants are lower than in the congested districts of the city proper. The very fact that the rate of growth within the city has diminished, accompanied as it is by the fact that just outside and around the city that growth is going on more rapidly than before, is in itself evidence of the splendid vitality and expanding power of our industries. To argue that because the surging increase in the volume of manufacturing activity could not be accommodated within the narrow confines of the small municipal unit industries are therefore decadent, is to see only one small part of the whole situation, and is in no sense a correct interpretation of conditions.

On the other hand, while the rapid expansion of industries just outside of Boston and the slowing up of the rate of industrial advance in the city proper is an evidence of abounding industrial vitality and capacity for growth, it also indicates a failure, as yet, to so organize industrial activities within the city as to permit of the considerable expansion which is yet possible, — a situation found in all large cities. There is still plenty of land admirably adapted for factory sites along the water front of municipal Boston, relatively

high-priced, to be sure, but capable of being profitably employed for industrial purposes if developed in the right way. The city proper, generally speaking, by reason of the higher cost of land, is not so well adapted to large industries requiring extensive yards for sheds and storage space as the more open regions outside. But for a host of smaller, lighter industries, which make up fully two-thirds of those enumerated in the census classification, — industries which can go up in the air in properly constructed buildings rather than along the ground, and whose machinery is of a kind that can be installed on upper floors and lofts and operated by electric power or gas engine, — to industries of this sort, the high cost of land in the city proper would be no obstacle, provided there could be found large, modern, factory-loft buildings, four to six stories in height, which would so fully utilize the land as to make it support a large volume of industry and thus reduce its cost to a point where it would not be a burden on the manufacturer. Such buildings should have the best possible transportation connections, both rail and water, when feasible, and should be constructed of such materials and on such plans as to reduce the insurance rates of tenants to the lowest possible figure. They should be well-lighted, ventilated, and equipped with all needful sanitary facilities, so as to make it possible for work-people to realize their highest efficiency, and should be so arranged that space could be utilized in the most economical way. Housed in buildings of this type, right in the midst of the dense labor market of the city proper, and enjoying all the indirect advantages that accrue from location in the heart of a great producing and marketing center, and from close and constant contact with allied trades, the proprietors of hundreds of small manufacturing industries would find themselves situated to far better advantage in Boston than anywhere else in the State.

Wages in and around Boston are moderate for industries of high grade. Labor, while well organized, is intelligently and conservatively led and reasonable in its demands. Industrial disturbances are comparatively infrequent and seldom of seri-

ous consequence. Boston has probably suffered fewer losses from this cause than any other city of equal size in the country. It is worth noting, also, that trade unions in a large city are not in a position to dominate the local labor market to anything like the extent that is possible in the smaller cities and towns. They are overshadowed by the magnitude and complexity of the whole industrial situation, and the variety of trades prevents any one from gaining a place of such commanding power as to lead to abuses such as are sometimes found in localities where great concentration of a few industries has taken place. To the manufacturer whose experience with organized labor has been unfortunate, a city like Boston, with its diversified industries and abundant, varied and elastic labor supply, offers a most attractive field.

The cost of living in Boston is not high relatively to other cities of like proportions. A study of the price quotations for thirty staple articles of food, given in Bulletin No. 77 of the Federal Bureau of Labor in 1908, shows that as regards about one-fifth of the articles mentioned, prices in Boston were low as compared with the average for the largest cities; in about three-fifths of the cases they were moderate; and in about one-fifth of the cases high. Clothing and house furnishings are certainly not above the average in cost, while on meats and fish Boston prices are probably somewhat below the mean level. The rents of work-people's dwellings, while higher than in the smaller cities, are moderate, all things considered; and the average workingman prefers to live in the city, even though his dwelling costs him slightly more, because of the greater variety and cheapness of entertainment and diversion.

Factory and labor legislation in Massachusetts, while advanced, cannot be said to have retarded the development of industries, and in fact have conferred many advantages, not the least of which is the unusual degree of contentment that prevails among the laboring class. It has been found particularly difficult to induce an artisan to leave Boston. He likes to live here.

Taxation of manufacturing corporations in Boston is

CHARLES RIVER BASIN, BOSTON

not relatively burdensome. While no special exemptions are granted, industries are not affected unfavorably by the manner in which they are called upon to contribute for the support of the State. The rate of taxation in Boston, $16.40 per thousand in 1910, is distinctly lower than that in many other large cities, and considerably below the average for the cities of the State.

Fuel and power costs in Boston are comparatively low, by reason of the heavy receipts of tidewater coal. Steam coal is generally about $1 less per ton than at inland points not in or near the coal fields. The local electric power company furnishes current for manufacturing purposes at remarkably low rates and stands ready to assist the manufacturer in every reasonable way.

The financial strength of Boston is widely known and admitted. The per capita total assessed valuation of the city in 1907 was $2,159, the highest in the group of fifteen leading cities with a population of over 300,000. This figure is a significant index to the accumulated wealth of the community. The total banking capital for Massachusetts, as given in the Bank Commissioner's report for 1909, was $1,749,826,025.29, of which some $800,000,000, or only a little less than half, was in Boston banks. The city's bank clearances in 1909 reached the enormous total of $8,440,382,263. The increase in banking capital for the State as a whole during 1909 was over $72,000,000. But it is not necessary to go on piling up figures to show the unquestioned financial resources of Boston. For half a century the city has been a mecca for promoters of sound enterprises of every kind, and the reservoirs of capital are kept full to overflowing by the splendid energy and thrift of the people. Local industry need never halt by reason of lack of capital.

Such are the industrial conditions in Greater Boston. Such are the openings for manufacturers. Along the metropolitan water front, from Lynn on the north to Weymouth on the south, are vast reaches of tidewater lands and flats, easy of connection by rail, within ready access to abundant supplies of labor of every kind — a region unsurpassed in the world

as an arena for an almost limitless industrial development — a development favored by every environing condition, created and natural. No discerning manufacturer, seeking a site for his factory, can afford to omit the Greater Boston district from his calculations.

WELLESLEY HILLS STATION, ON THE BOSTON & ALBANY RAILROAD

Industry and trade are the foundation stones of a city's growth and prosperity. Without them, no substantial progress, no considerable and lasting achievement can be made. But business success, material welfare, a plentitude of the things which minister to the physical wants are, after all, only means to a higher end, and not ultimate ends themselves. Their existence makes possible the creation of all those instrumentalities, physical and cultural, which render the life of the community richer, finer, more complete. They call into being a class of people who have won a competence, who enjoy some measure of relaxation from the fierce competitive struggle, and a leisure that enables them to devote themselves

to the pursuit of artistic and educational aims and to the building up of a better and more intelligent civic life. The community which has achieved this condition represents an advanced stage of development. Boston has probably gone further in this direction than any other city in the country. This very fact presupposes a high degree of industrial and commercial development.

None but a wealthy city could be so beautiful as Boston. Within the metropolitan district can be found topography and physical surroundings to suit every taste. Hills, streams, valleys, and reaches of level expanse, afford a variety of scenery and a diversity of soil and site that provide a favoring environment for every type of the city's activities, and a matchless setting for the community as a whole. Among the low hills which approach the harbor from all sides are found residential sections unsurpassed for beauty and healthfulness in the world. On the flat lands along the Charles, the Mystic and the Neponset, and rimming the shores of the bay, are found the busy, prospering factories which every year turn hundreds of millions of dollars worth of varied products into the channels of world commerce. On the central peninsula, jutting boldly into the inner harbors, and throwing up the bluff eminence of Beacon Hill at its terminus, lies the heart of the whole region, the business core of Greater Boston.

Nature surpassed herself in molding the physical environment of Boston. The dwellers in the favored region have taken full advantage of her bounty. Located in the very heart of the city is the superb Charles River basin, affording, summer and winter, manifold opportunities for outdoor recreation. Within the metropolitan district ten thousand acres of open spaces, linked together by twenty-five miles of continuous boulevards, present the most extensive park system in the country, and the most accessible. The excellence of the highways about Boston, and for that matter throughout the State, is so widely known as to render comment unnecessary. The region is a paradise for those who drive either in carriages or automobiles. Vast metropolitan systems of water supply and

sewage disposal also provide the people of the Greater Boston district with a most efficient service in respect to these great public utilities so essential to comfortable and healthful living.

But the charm of Boston is not alone found in the extent and excellence of its public works and in the superb environment which Nature has provided. It must be sought, too, in the traditions, ideals and habits of the people, their attainments in education, art and general culture, and in the historical associations inseparably bound up with the life of the region. All these blend into one harmonious composite impression that might be termed the spirit or the personality of the city. This charm, this personality of Boston, is widely felt and acknowledged. It is indefinable, but intensely real. All the elements of the city's varied life compose it. Nor is it confined to any one class or section. Every one privileged to live within its influence feels it. Literally, it may be said that many people, for whom circumstances have shaped attractive opportunities elsewhere, choose to sacrifice those opportunities for the sake of remaining in Boston. Wage-earners as well as those with salaries and independent incomes have a like experience. The artisan, the man who earns a moderate income by work with his hands, prefers to spend that income in Boston, because it yields him there more genuine pleasure and satisfaction in living than he can find elsewhere.

Boston: The Next Phase

Boston is a city which has suffered much from acute definition. Indeed, this has been carried so far that there are today properly two identical cities — the Boston of fact and New England, and the Boston of fiction as known to the world. The second of these two is an honorable tradition surely; but, as a matter of truth, it is great legend, and to be taken as such. To the public of this country, and even, in lesser degree, before the nations, Boston has been too much represented in the garb of her past. That garb has been put aside at home, and to wear it abroad is both affectation and fraud. Boston is no longer (even if it ever was) an American Athens; it is a complex modern city, less American, if the facts were known, than many a younger sister of the West; a field of social experiment partly conscious, partly fortuitous, where certain racial, municipal, commercial and social dramas are enacting themselves for those who have the eye to see.

It is no more accurate to speak of Boston as separate from New England than to speak of Boston without its suburbs. Just as a set of special conditions has wrought the city into a huge Suburbia, another set of conditions, peculiar to the locality, but sharing certain elements with all American cities, has wrought in the city a profound dependence on New England, not only for its superficial wealth, but for that ultimate wealth of any city or any nation — its people. In years past Boston has drawn much of its worldly prosperity from the sea, but today, in a human sense, the strength of the hills is hers also. Of the thousands of dwellings that go to make the sum of the city's population, there are relatively few which do not send their roots down into the soil in Vermont, in New Hampshire, in Maine, or in the states south of this group.

The water areas have classified Boston by districts with the utmost precision. In the center of all lies the business dis-

trict, not very large, but well concentrated, and minutely full of sharp little classifications and subdivisions of its own. At its rim lie three large areas, each with the population of a moderate-sized city; — the North End, the West End and the South End. Across bridge and ferry are sprawled what may be termed the three "maritime" suburbs, — Charlestown, East Boston and South Boston, — which fall into a second group as naturally as the "ends" into a first. Outlying inland are the regions of Dorchester and Roxbury, originally (and until not long since) towns, but now numerous cities, quite as distinctive of character as any of the other districts. To attempt a formula for this scattered and diverse population is therefore as brisk a generalization as plenty more of which literature has been convicted — as absurd as the indictment of a nation. There remains one district so sharply defined, and of so unique a character, as often to pass for the whole of Boston. The Back Bay and its people have, so far as such a thing is possible, the homogenity which is very convenient for definition. It is, indeed, largely the relic of the great tradition, venerable, dignified, and ancient with what antiquity a young country can claim. But it is no more exclusively representative of Boston today than the South End, and in certain important respects, not so much so; and it is certainly nowhere nearly so representative of the Boston of tomorrow as the North End or the West End, for the simple reason that the most of the babies are coming from these more humble origins. The great tradition is not proportionately reproducing itself, and it behooves us therefore the more to understand the actual and the impending Boston.

The North End is, in the nature of things, the crucible of the new citizen. It has been so for more than half a century — the metal of one nation, the Irish, has passed through its refining fire, and the metal of a second, the Italian, is now passing through in its turn. A third seems likely to follow before the region is claimed by the business district. Beginning as a residential section of the old Yankee families, the North End passed, after the Irish famine, to the Irish immigrants. Then came the Italians, able to live more cheaply than the Irish,

and the district became theirs. But if the Jews can underbid them for the space before business grows from Washington street to the wharves, we shall see another change of ownership and another entire change of conditions.

Quite as important, though less consecutive, has been the trend to the West End. Here, too, lived the "solid" families of the elder city, and the grave old red-brick houses up side streets tell, even through present squalor, the dignified life of that time. Hither came the lodging population, followed, in part, at first, by the immigrants. Today the quarter is divided among Jews, Italians, Irish, Russians, a few remaining Yankees, and a numerous population of working people who live, for the most part singly, in the lodging houses on the northern slopes of Beacon Hill. Ultimately, of course, most of this area will be wanted for business, but at present the West End more resembles a thickly populated rabbit hutch where few but the politicians and a scattering of social workers feel certain of what they are dealing with, or how the dealing is to be done. Of all the quarters to be considered the West End is, in these matters, the most chaotic.

When the growth of Boston, the city, was a vigorous and palpable movement by the middle of the last century, what now goes by the name of the South End came into being under special circumstances. Already Americans had begun to live, as it were, with one foot in Europe, and England, in part, instructed us in the planning of a new city district. The South End was laid out with a generous width of street, with frequent well-shaded side streets, house fronts close to the walks, and, behind, an ample space for yard and garden. Every few blocks came a street widened to the admission of a park modeled after the "garden squares" of London. They were, and are, surrounded by ranks of high and handsome houses; dignity and seclusion was theirs, and in the days when the South End was still the substantial residential district, the city had a distinction of domestic life which it wants today in its sprawling suburbs. The South End that was made a compact and accessible abode for the people who depend on Boston for their maintenance, and upon whom no less Boston de-

pended. It still permitted the people who made their wealth in Boston to continue residents in Boston. If this set of conditions had persisted there is reason to think that the city would be a social organism different from the present, and probably better. Certainly, it would have been a more urban community and probably it would have been better governed in the interval. But we have had in the South End the graphic spectacle of a city growing too fast for its strength. The "made land" traveled northward as far as Beacon street and the life of the quarter was drained over into the new houses in the Back Bay. The elevated railway came down Washington street and thundered over the quiet garden squares. There was a migration of the families who had built this district and for reasons which prevented similar families filling their places. Not all the South End went to the Back Bay by any means, but the set of the current was unmistakable, and the end came. The South End became the abode of the lodging population who required housing within the five-cent fare limit, or, even nearer, within walking distance. Many of the fine old streets turned squalid; others turned shabby; some persisted in a career of frayed gentility; and to this day there are families of the elder time still in the South End, unable or unwilling to leave their old homes, although all its neighboring associations are gone.

The process in the North and West Ends was in a measure inevitable; but this last, undeniably a great loss to the city, might possibly have been avoided. If the "made-land" of Boston had been allowed to fill more gradually, there is reason to suppose that the part of the population which went to live in the suburbs might have been kept as residents of the city, and our whole community life might have been altered. Instead, the South End, a bleak waste of fine old houses fallen on poorer days, confronts Boston as one of the insistent questions, on which only the mere beginnings have been made. What those beginnings are is the test of one of Boston's contributions to sociological study in the contemporary method. That the experimentation has not gone farther is due to the slowness of recognition that Boston *is* more than an over-

grown big town or even a provincial city. Besides, this part of the community, as being less alien and more Yankee, is the least negligible. Here are the New Englanders from the various "up-states." It is here that the youngsters live when they begin to hew out homes and possibly fortunes in the city. No city can afford to neglect them, much less ignore them. Social work has made a beginning here; but not more than a beginning.

It is not too much to say that this inner zone of the city has, by various processes, brought into existence the outer zone already mentioned — Charlestown, South Boston, and East Boston — half suburb, half city, not desperately poor except in spots, certainly not blatantly rich; containing many good homes and many inferior; thus far a bulwark of good citizenship in serious matters but problematical as to the future. A group of social workers in the South End studying these three districts have hit upon the accurate definition, "The Zone of Emergence." As the family dwelling in the inner belt nearer the city's center waxes in prosperity, it moves a step farther out. The Irish who flocked into the North End in the years following the famine were a thrifty lot — in a few years more Charlestown was largely theirs and is today; or others went to South Boston, which is now predominantly Irish and relatively prosperous. The process is repeating itself with Jew and Italian. Already, the North End has sent a flourishing colony of Italians across to East Boston, and the West End is continually "graduating" its more fortunate Jewish families to the outer boundaries of the city. East Boston, also, contains a large share of the seafaring men who make Boston their port; men of Maine, others native to this State, and a prodigious admixture of Nova Scotians (it is estimated that nearly a quarter of the population of East Boston is either native or of Nova Scotian extraction). These three cities—they are virtually cities—are obviously not suited to the settlement work which lends a helping hand in the more congested districts. Neither is it well that these people should be left altogether to their own devices which, though honest, are likely also to be clumsy.

The South End House, which is making this study, is convinced that something must be evolved half-way between church and settlement house; some type of institution which can be supported both from the outside and the inside, both by people of means and by the families actually enjoying the privileges of the institution. Just what this is to be is not yet certain. Its discovery, if made in Boston, will constitute one of the most important contributions of this city to social experimentation, since these conditions, while presented to Boston under certain special guises, are not peculiar to a single locality. They are manifesting themselves elsewhere, and any advance here means an advance all along the line.

Completing the roster of city districts come Dorchester, Roxbury, West Roxbury, and Brighton, residential areas, practically suburbs, lying to the westward or southwest, now mainly the abode of the well-to-do or moderately well-to-do, and rather to be looked on as the support of social endeavor than its field. They partake, in a manner, of the general characteristics of Suburbia, the social, commercial, and political bearing of which are still to be considered.

Such, then, in outline is the composition of the Boston of today, and any one attempting to define it in accordance with the terms of the old "literary legend" will either be obliged to drop all of the city except the Back Bay, or else be convicted of ignorance and slap-dash judgments. Such an enormous mass of rubbish has been written about the old notion that it seemed, in a serious consideration of the city that is and is to be, necessary and important to understand the true elements of the community.

In certain of the institutions of the city, nevertheless, abide the character of that elder Boston, forethoughtful, fair, conscientious, mindful of man's duty to himself here and hereafter. Sunday is still a Sabbath, as the complete desertion of the business streets on that day will attest; a score of years ago the city drove out its gamblers; during the past year the Police Department issued a record of the enforcement of the laws against sexual immorality which made edifying reading. As long as certain fundamental defects persist in modern so-

ciety, the police will always be at war with a vice as old as monogamy and older, but the police of Boston have, at least, had no resort to the usual compromises, whether of license, segregation, or official blindness. In the crusade against Tuberculosis, Boston has been in the van; has made, and is making, contributions to the general sum of our knowledge of methods for controlling and checking the disease that cannot be profitably neglected by other cities. Numerous small signs tell the observant stranger that there is, after all, a highly sensitized public conscience at work, and if these failed, he would need but to consult the list of societies and institutions in the city directory to note the enormous body of benevolent work which is being carried on each year by bequest, endowment, or coöperation. Forgetting the "legend" altogether, we may say that scores of years — amounting to two centuries — of dwelling on the serious aspects of things have bred in the reflecting (and the will-making) part of the population, an abiding sense of responsibility to fellow-men which is today legible in the imposing brick and mortar of hundreds (it is said advisedly) of beneficent institutions.

Since it is obviously out of the question to trace the origins and sketch the features even of a small proportion of these, let certain of the more characteristic and those principally far-reaching of influence and scope be chosen as representative.

When American cities are named in the order of their contributions to public improvement, Boston's claim to mention is the system of public parks. Western cities which have grown too fast for their beauty, like young boys long in the leg and lean in the shoulder, have begun to think and talk of planning boulevard, street, square, and vista. The prospectus pamphlets which, notably, St. Louis and Chicago have issued, contain, by way of proof that these results exist outside of the brain of a landscape architect, descriptions or photographs of the Metropolitan Park system of Massachusetts. It is doubtful whether the project originated in Massachusetts. Similar schemes for beautifying cities have been practiced abroad. These experiments are a matter of general knowledge and such local applications are more generally a

matter of collective rather than individual effort. It is better so — one-man institutions rarely have the vitality that belongs to a public impulse. The originality here consisted in the ability to foresee the value and need of such reservations. Their purpose was avowedly benevolent "to make available to the inhabitants open spaces for exercise and recreation." In all such undertakings there is an issue between esthetics and ethics; whether the institution shall be conducted for the sake of public beauty or public welfare. The monarchs of Europe became landscape gardeners for the sake of esthetics; they gardened their private grounds which, in the due course of time and democracy, became available for the pleasure of their subjects. But in the Metropolitan Park system, public welfare was the issue at the start. Here was another contribution of Massachusetts to the democratic ideal. Esthetics were secondary to ethics; the good of the many was the end, and beauty was the means. Here, we are quite justified in saying, the pure brew of the New England "conscience" turned "social consciousness" is seen at work. We were only justified in this expenditure of public money if the public itself was chiefly to benefit, whereas many a European monarch of today would feel that merely to adorn capital and glorify himself is a justifiable end in itself. These forces and impulses are larger than the individuals they animate. It is not to be supposed that the discreet and able gentlemen who originated and executed the scheme of metropolitan parks were conscious of serving a national destiny, or even of complying with the spirit of a local tradition, for great historical movements can frequently be traced to personal whim. But this does not belittle the magnitude of the forces in operation or discredit their authority.

Benevolence can overreach itself, nullifying much of its helpfulness by duplication, as two clergymen, each more bent on saving a man's soul his own way than concerned that the soul should be saved. Some distance back the multiplication of charities in Boston required some safeguard against duplication, unprofitable rivalry, and the opportunities for fraud among applicants. The Associated Charities of Boston,

dating to 1881, are at once an institution characteristic of the thrift and thoroughness of the community and one which has a beneficial influence on the corresponding situation in other cities. The nature of the organization is easily explained by its "objects" thus formally stated:

"To secure the concurrent and harmonious action of the different charities in Boston, in order

"To raise the needy above need of relief, prevent begging and imposition, and diminish pauperism;

"To encourage thrift, self-dependence, and industry through friendly intercourse;

"To prevent children from growing up paupers."

Methods are briefly indicated. A provision that the case of every applicant for relief shall be thoroughly investigated; another for a means of confidential exchange of information between the Overseers of the Poor, charitable societies and agencies and benevolent individuals; and a stipulation to make all relief conditional upon good conduct and progress. Employment is, wherever possible, to be offered instead of alms, and poor families are to have the counsel of a friendly visitor. This able formulation of theory and method has served other cities as well as it has served Boston. Its passive influence has been as salutary as its active undertakings. Its organization of the city into districts is the story with the moral.

The Boston institutions chosen for this study have been selected for their bearing on the only real and ultimate wealth of a city — its human resources. This is, oddly, a recent discovery; and with all the multitude of Boston's social institutions, of which only a few examples can be treated for the present purpose, this fundamental fact has been grasped but vaguely. A distinguished lawyer, speaking in behalf of a recent social movement in the city, pointed out that for generations the Yankee genius has been exerted on the mechanical device and the material product—on the apparatus of living, not on life. We now come to the point where we must leave mechanisms for a season and attempt to perfect our human institutions. It is a large order, and Boston has barely begun.

Still, if, forgetting the "legend" and recognizing the character of the city as it is, we can only be sure that Boston has begun, the beginning, as the Greeks say, is half of the whole. Such an attempt has been made by the Associated Charities; webbing the city with the skein of their district organizations, sixteen of them, in the quarters where most badly needed. The territory is vast, and the population mounts into the hundreds of thousands. It is idle and dishonest to pretend that the Associated Charities reach more than a small percentage of the deserving poor. Intimacy with any single district included in the organization is information of that. The point is, that by this federation and systematized method of work, the same amount of effort is made to go many times as far. This is the solid contribution of this institution.

Most obvious of any public relation is that between property owner and paid guard. For so much I pay a man to watch over my goods. Now police establishment is only possible in a highly organized and well criticised state of society. The folly and danger of a large standing army was perfectly recognized in medieval times. But sentry duty is as old as civilization. As a result we take our police for granted, especially in Boston. The reasons will bear inspection.

"The governor," says an act of the Massachusetts legislature, "shall, with the advice and consent of the council, appoint a single police commissioner for the city of Boston." Five years is his term of office; his annual salary of six thousand dollars is a safe figure in many ways. It is not enough to excite the cupidity of wealth, and it enables a man of moderate means to make the private sacrifices necessary for performing the duties of this office. All expenses of the department — maintenance of buildings, pay of police, and of employes — are, of course, borne by the city of Boston upon the requisition of the commissioner. The commissioner's records must be open at all times to the inspection of the governor and the mayor of the city. He is answerable; but elections come and elections go, while the department of police remains firm.

Not so many years ago the social settlement was to save

us. We put our faith in it, and also a generous amount of our money. We tossed our youth into it and bade our clergy follow. Mistakes were made and inspirations were put to work. Here and there, what we were pleased to regard as miracles were wrought. Today we are less delirious about settlements, and more intelligent. Certain things they can do for a neighborhood as no other agency; other things they cannot do. Neither can they do the same services for different districts. In Boston there is reason to suppose that all the settlement houses that are to be established for the present are already in existence. The North End has them, and the West End. They are in the South End, and in the quasi-suburbs. Sixteen houses are included in the working federation of the groups.

The settlements are cited for a special reason. They are by no means peculiar to Boston, and probably they have reached a higher development in New York and Chicago, where more was at stake. But they deal with conditions common to all large cities. What is perfected here can be adopted elsewhere; and, be it remembered, when they began we were so sure the thing had been found. We see now that it will not be found at a single strike, in the nugget, but must be laboriously panned — which applies to all human advance. And the settlements are now arriving at a crucial point which is useful to record. They are relatively where the charities were in 1881, and whither those charities are again returning. They want federation — an association for support and activity more intimate and more effectual than that of the present. They are waiting, they say, for an adequate response from the public. But such things have to be fought for. At present, each is struggling for its individual support from its individual clientele. Let them make common cause; let them let it appear, and the support will come of itself. People are not so slow to catch a drift, if it is genuine, and they are mostly grateful for any plausible project that will satisfy their cravings to render a visible and concrete benefit to their fellows. This is important, and it is necessary, for it is the logical next step of a force which a modern city cannot afford to leave out of its reckoning. The advance is in

the main direction — that of organization. And organization in the larger sense is precisely the task which confronts the shifting, changing, renewing, altering city of Boston as it is today.

The lesson, the threat, the promise of the future are all in those shabbily genteel streets of the South End. The houses have style and character; feature is theirs, and dignity. They were built and lived in once by people of means and discrimination. City or not, it was a neighborly place; families interchanged visits and married son to daughter. In the same period Charlestown, East Boston, and South Boston had developed a similar social distinction. It was not a season of aristocracy but of reputable commonwealth — the very personification of the Massachusetts — or shall we say the New England? — idea. If that life had continued as it began, the tone and the administration of Boston affairs would be very different today. We would be an urban community instead of a suburban. The householders of the city would still have their country seats for summer occupancy, and their votes in Boston. Whither they scattered when the neighborhood slump began is part common knowledge and the rest an easy guess. A relatively small proportion migrated into the Back Bay. A much larger proportion sought the suburbs, put their faith in transportation — which the railroads presently found it profitable to fulfill, — and ceased to be voting members of the Boston community. They still make their money in Boston, and in Boston spend it, but they sleep — and vote — outside, in one of the two score of bedrooms to the city. Their interests, their conversation, their aspirations, their ideals and their manners are suburban; and the injustice of it is that they are not the ones to suffer for it. In many ways they are better off. Those who pay are, as usual, and by the inescapable logic of facts, the poor who remain in the city. Ultimately, of course, unless the metropolitan district fuses into a single community, this suburban selfishness is bound to be its own defeat, since the house is divided against itself.

Transportation

Transportation, itself one of the industries, has from crude beginnings spread its veins and arteries over wide areas, making possible the development of manufacturing and agriculture, and increasing real estate values in naturally advantageous but otherwise impossible localities. Its prime requisites are safety, speed, and a capacity to grow with complex industrial development while maintaining adequate connections between the manifold centers which specialize in various forms of production. It must consist of main lines connecting all the important points, and sufficient feeding lines running into sparsely settled districts. Between the railroads, the harbors, and the navigable rivers, adequate connections must always be maintained, to enable speedy and economical interchange of freight; also for the advantageous interchange of traffic between the lines operated by different companies. From the large cities as radial centers there must run in every direction transportation lines for distribution of the various products of different sections.

Boston is the transportation center of New England, and from that point radiate the most important water and railroad lines. Within a fifty-mile radius of Boston there is a greater railroad mileage, per square mile and per capita, than within any other fifty-mile radius in the world. Throughout the entire southern section of New England, which is covered with a close network of railroads with branches running in every direction, are found manufacturing industries of every description, many of them surpassing in their lines any in the world in quantity and quality of output. This is not the result of a preconceived plan on the part of either the manufacturers or the transportation companies. Nature endowed this section with abundant waterpowers and fertile lands, and gradually, as these were harnessed and developed

and small industries began to grow and prosper, transportation took on larger life and developed hand in hand with a mighty industrial growth that has never been equaled in the history of any country. As the demands for the products of these mills and shops and lands grew, and new markets were opened in the West and South, it became necessary to find means for handling goods and produce quickly and economically. It was then that the railroads pushed outside and spur tracks to deliver at the doors of the factories their raw materials and take away the finished product, and built stations in the agricultural districts.

Neither transportation systems nor the industries of New England have yet reached the height of their development. They are at the threshold of the possibilities which their natural location has placed within their power. This is made evident in the abundant waterpowers that have not yet been utilized, and the large undeveloped areas of land that lie along the trunk lines of the railroads, possessing great diversity of natural resources and capable of great productivity. There is however a weak link in this chain of industrial and commercial development. The farmer has failed to take advantage, to the extent that the manufacturer has, of the inventive genius of man in creating facilities for taking to market the products of his land and labor. The present facilities in New England for carrying farm produce to its markets, the best in the world, should awaken a new interest in the minds of those seeking to invest capital and skill where results are sure to prove commensurate with intelligent effort.

As early as 1835 we find transportation services advertised. This was in the days of the stage coach. Now, with all the modern forms of travel, we find a department maintained by every passenger-carrying company for acquainting the traveler or pleasure-seeker with the different routes of travel and the suitable localities in the mountains or at the seashore for summer outings, and for hunting and fishing in the forests and lakes of the northern states. This service also extends to the business departments, rendering assistance to corporations desirous of locating factories, with the ability

to furnish information concerning the special advantages that are to be found in the different localities along their lines. The "barren and rockbound" idea, that has for generations furnished jests for the scoffer and despairing songs for the bard, has in this way been dealt a death blow by the transportation companies, to whose activities unmistakable signs attest that the tide has definitely turned toward New England's undeveloped opportunities.

Going back to the early period of the settlement of New England, which the historians tell us teems with traditions of hardships endured in the effort for a mere existence, we find the crudest possible means of transportation. First of all was the boat, by means of which the early pioneers spread out and formed settlements along the coasts and rivers. Artisans for the most part, wherever they settled they soon harnessed the waterpowers for manufacturing, and then came the demand for other channels of distribution. The old roadways with their swinging gates covered with pikes, constituted the first inland ways, or "turnpikes," over which horse-drawn vehicles of the crudest sort were slowly moved. A demand for any essential to the progress of civilization and human advancement has never yet failed to be met. So at this time, when development of the natural resources of the interior seemed advantageous to the growth of the country and the progress of the people, and inland channels for more rapid transportation of the products of the new industries that were beginning to specialize were demanded, the steam railroad came to meet the need.

The transportation problem of New England is different from that of any other section of the United States, or any other country in the world. It grew as the New England towns grew, as the streets of Boston grew. It grew with the development of the railroad idea and with the growth of the section—haltingly, spasmodically, without plan for the present or provision for the future. At the very first there were no railroads, of course. There were only the stage coaches for passengers and the water routes and teams for freight. When the railroads came their progress was very

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timid. They were built here a few miles and there a few miles, with no idea of ultimate extent or possible consolidation. The growth of the railroad idea and the growth of the country were more or less synchronous, and the development was not unlike the development of business needing the transportation services of railroads. The great change came with the consolidation of several independent lines into what was the germ of the great system that now serves almost the whole of New England, the New York, New Haven & Hartford company. This was in 1873. Then there was the Boston & Maine, which had gathered in several independent lines, and was preparing to take over several more important ones. The period beginning about that time saw the railroads of New England enter upon the most strenuous phase of their existence. The systems were big in name and in money-making power, but their trackage and equipment was inadequate, and steadily became more inadequate.

"In compact New England the intensive character of its development had impeded the improvement of transportation facilities along modern lines. The dense population, socially and industrially the most highly organized in the country, and demanding a correspondingly efficient service, was, by very reason of its advanced standing, long compelled to put up with a low-grade service. This was because of the many difficulties and the excessive costs involved. In one respect, however, the ground was prepared for the change. The process of consolidation and unification were well-nigh complete." [1]

In 1840 there were only 426 miles of railroad in New England. The principal lines were those running from Boston to Worcester, Providence, and Lowell. In ten years there had been an increase to nearly 3,000 miles. New lines and consolidations have rapidly followed. In Massachusetts alone are carried nearly 150,000,000 passengers a year, while the freight hauled approximates 50,000,000 tons. With the growth of the railroad there came rapid and important changes in some of the old centers of population. New and

[1] This passage, and several others quoted in this chapter, is from an article by Mr. Sylvester Baxter, published in *The Outlook*.

enterprising cities sprang up in what had been isolated localities. Previous to this there had been in New England no inland towns of over 4,500 population. In Worcester we now have the largest inland city in the world, and many other cities and large towns have grown to large proportions as the result of railroad extension. The growth of these inland towns has helped to develop the surrounding farming territory by bringing excellent markets for their products within easy reach of the farms. The period of greatest development of the railroad was between 1830 and 1850. Since then it has practically superceded all other forms of transportation.

At about the time some of the great transcontinental railroads were being planned and built, and the West was being considered with reference to its potential as well as its present needs, the railroad problem in New England had assumed its most perplexing and difficult phase. What had been done had not been properly planned with reference either to the future of the section or of the railroads. The tracks and the equipment were old in model and not adequate for the traffic then offering. The industrial conception of railroads had radically changed since these were built, and there had been such improvement in building and operation as to make them out of date and incapable of performing the service demanded of them. The separate roads had, many of them, been prosperous, and the terms of consolidation or lease required that the rate of earnings be maintained. The needs of the section, though increasing, were not to be closely estimated. Railroading had not become the finished science it is now, and financial interests were neither able nor willing to advance the enormous sums of money they now unhesitatingly furnish. The new managers of the augmented companies had before them a series of very stiff problems. It happens that the development of transportation in New England has fallen largely to the initiative of the New Haven company. While the Boston & Maine has become, through consolidation and leases, a great system, it has been operated upon a different plan than the New Haven, partly because of inherent difficulties, onerous financial burdens, and less rapid growth of the

section it served, and partly because of the different methods of its managers.

"At that time the New Haven had already become a big consolidated system. 'Big' well characterizes a New England railway operating more than four thousand miles of track. Considering density of population served, intensity of traffic, frequency of train movements, and volume of business, this is the equivalent of at least a sixteen-thousand-mile system beyond the Mississippi. The New Haven holds the record among American railways for the largest dividends declared consecutively through a long period — dating from the organization of the company as the New York, New Haven & Hartford in 1873. Consequently the inertia of 'Let well enough alone!' had been difficult to overcome, but it was seen that not to develop the traffic possibilities of the property by liberal expenditures backed by the highest engineering skill and administrative ability would mean atrophy. In 1903 the capital stock was $70,897,300. The stockholders had voted an increase to $77,000,000. Later on, the full $100,000,000 legislatively authorized was issued. And in less than six years $116,288,000 was spent for improvements. It is doubtful if the head of any great railway has ever before faced such a diversity of transportation problems as became the task of Mr. Mellen when he came back to the New Haven: Vast reconstruction in tracks and terminals; enormous additions to the equipment; readjusting relationships with the trunk lines, and formulating new policies in behalf of New England, as well as strengthening his company's own position as a national factor in transportation; developing a broad policy in the local field occupied by the trolley-line services; improving and extending the company's marine lines; opening up new connections with the systems beyond the Hudson; energetically dealing with coal-carrying agencies to safeguard the fuel-supply services vital to New England's industries; great terminal improvements in New York and elsewhere; electrification on a scale that meant revolution in motive power conditions. The New Haven is much more than a railway company. In marine transportation it does a large and profitable

business. It practically controls the trolley services in Connecticut and Rhode Island. Through the charter rights of acquired street-railway properties in Connecticut it incidentally supplies electricity and gas for light, heat, and power. New York City locally constitutes the greatest market for New England industries and is also a chief gateway to the markets west and south. This circumstance has developed an extraordinarily expeditious freight service. A piece of leather one day converted into shoes in a New England factory may the next day take its place on the shelf of the New York retailer."

More than $116,000,000 has already been expended for improvements on the system, not including $43,268,000 for new equipment, and the rest of the great sum for improvements that make great economies in operation possible, and that enable the road to handle the business offered and provide in an adequate manner for the future. Perhaps there has never been a work of reorganization of this magnitude accomplished in the history of American railroading. A study of its progress and scope gives a better idea of the greatness of New England, and its rate of growth, than almost any other method that can be suggested, and that is the excuse for specifying some of the things done by the New Haven since 1903, which is not so very long ago. It may also be well to suggest that this same policy and vigorous method is soon to be applied to the Boston & Maine lines, and the results will probably be as beneficent for the northern portion of New England as they are shown to be for the southern.

There are two natural divisions of the railroads of New England, despite the fact of the one control: those running south of Boston and those running north of Boston. Both systems connect with the West direct, and also with the export and import shipping traffic through Boston harbor. The interchange of freight between the two divisions is as yet comparatively small, but the tendency is toward a rapid increase, and in time it will become necessary to secure a more economical way of handling traffic when en route from the south or north to a point beyond Boston. Of the roads run-

ning south, the New York, New Haven & Hartford has a greater concentration of passenger traffic than any railroad in the United States. It covers a section admirably adapted for manufacturing interests. Nearly every product that can be mentioned is manufactured within its limits.

The system of railroads running north from Boston also reaches the West direct. The trunk line of the Boston & Maine along the coast of Massachusetts and New Hampshire joins the Maine Central at Portland. Another trunk line runs further inland and furnishes the commercial avenue for several important manufacturing towns, and also has a terminus at Portland. A third trunk line along the Merrimac valley serves several cities and large towns famous for their textile industries. Over this line connections can be made with the Grand Trunk for Canada and the Northwest. Throughout all of the three northern states of New England, and many of them along the lines of railroads, are extraordinary waterpowers which if utilized would revolutionize transportation and industry.

Vermont, rich in natural resources and excelling in soil-produced wealth, has two trunk lines of railroad running north and south its entire length. These furnish channels for marketing its marble, granite, slate, and limestone. It is in direct connection with Boston and the big cities of the West. The farming districts in Vermont are in many instances a greater distance from shipping points than in the states lying south of it, and consequently there is less truck farming and market gardening. There are however excellent opportunities for fruit growing and potato raising, and with good railroad facilities, manufacturing and agriculture in these sections of waterpowers and fertile soil would produce liberal reward for capital and enterprise.

Eleven trunk and branch lines of the Boston & Maine railroad enter New Hampshire from the south, and there are several transverse branch lines in the eastern and central sections of the State. The delightful summer climate and scenery of the White mountains bring a multitude of summer visitors, who constitute an important part of the traffic of the

roads extending north. The Mt. Washington railroad, from the base to the summit of Mt. Washington, a distance of about four miles and attaining an altitude of over 6000 feet, is one of the most remarkable railroad constructions in the world. There are large areas in the central portion of this State at such distances from railroads as to leave fertile soils and magnificent waterpowers without means for proper development. Live transportation enterprises could open up enticing prospects for manufacturing and agriculture in these now isolated sections.

From Portland the Maine Central railroad operates lines along the Androscoggin and Penobscot rivers. The Somerset river and Rangeley lakes railroads extend into the Rangeley and Moosehead lake regions, and connect with the Canadian Pacific. Through the central portion of the State, and reaching far up into the lumber regions, and on to connect with the Intercolonial railway in Canada is the Bangor and Aroostook railroad. Some of the largest lumber mills in the world are in this section, and these make a great amount of bulky freight. A single mill in nine months shipped 26,000,000 feet of long lumber, 4,000,000 laths, 5,500,000 clapboards, besides thousands of cords of pulp wood. In the Aroostook region potato raising is an important industry. Twenty-nine and a quarter million bushels, raised on 130,000 acres, were shipped from there in a single season. There is an immense traffic over these roads in summer, when multitudes from all over the country seek this playground of America with its charming scenery and unequaled sporting grounds. This whole north country abounds in natural resources that have scarcely been touched, and it awaits avenues of transportation and industrial activity to turn what is now a wilderness into a vast community teeming with life and enterprise.

To encourage greater activity in agricultural enterprises the Boston & Maine railroad first adopted a plan to operate educational farming trains. This idea originated in the West and has undoubtedly been of great benefit to farmers in the production of better crops, to the railroads in increased traffic, and to the public in general in enabling them to ob-

tain better food supplies. The Boston & Maine, the Maine Central, the Somerset railroad, and the Washington County railroad, combine in equipping an educational farming train to be operated each year throughout New Hampshire and Maine. The New York Central, lessee of the Boston & Albany and the Rutland railroads, ran a better farming special for the first time throughout western and central Massachusetts early in 1910.

The demand for a method of transportation to accommodate passengers in transit from one section of a city to another finally developed into the electric street railway. From the first trolley lines, which were operated in Boston, this system has grown to gigantic proportions throughout New England. Interurban lines soon followed the building of electric railways in the cities, and now many of these lines carry freight and express. The trolley is fast taking the place of steam for short-line traffic, and it has developed a traffic peculiarly its own that has grown to enormous proportions. No method of transportation has ever developed so rapidly or been so popular as the trolley. With the introduction of the trolley the character of whole sections in the big cities has changed. It makes possible the division of congested centers into sections, each devoted exclusively to either manufacturing and trade or residences. It enables the city business man and laborer to enjoy the advantages of a country home.

The Boston Elevated Railway company operates 484 miles of surface, elevated and underground tracks in twelve municipalities of which Boston is the center. Since the company began operation, in 1898, the facilities have been rapidly increased by extensions and additions of great magnitude and cost. In a little over twelve years the investment has grown from less than $26,000,000 to over $81,000,000. When the work under way or about to be begun is completed, within the next four years, the total investment is expected to be about $112,500,000. The company has added or is responsible for the provision of the original elevated railway, the East Boston tunnel, the Washington Street tunnel, the Forest

Hills elevated extension, and over 150 miles of track that has added to the surface system, all of which is now in operation. Work is now in progress on an elevated extension from the northerly end of the subway to East Cambridge; on a subway from Harvard square in Cambridge to the West Boston bridge, and on a tunnel under Beacon Hill from the West Boston bridge to the present Park street subway station. An extension of the elevated line beyond Sullivan square to Malden square is authorized and will shortly be begun. Sullivan square station will be altered to increase its capacity and convenience and to adapt it to be used as a way station on the new Malden elevated line. The Riverbank subway from Park street under the common to the Charles river and thence paralleling the river to Charlesgate has been authorized and its construction is planned for the near future. The territory served includes about 125 square miles. The company carried during the year ending October 1, 1910, a little over 296,000,000 revenue passengers and about 165,000,000 free transfer passengers making a total of 461,000,000 passengers.

The ownership and operation of trolley lines by the steam-railroad companies has now become recognized as an important factor in economic transportation. The Boston & Maine railroad was the first to undertake the operation of street railway systems. It has properties in the Merrimac valley and in the vicinity of Portsmouth in New Hampshire. The New York, New Haven & Hartford railroad some years ago electrified its Nantasket branch, and later it acquired control of several trolley systems in the vicinity of its steam lines. This road has approximately 1000 miles of trolley lines in Connecticut and Rhode Island. They are operated by a subsidiary corporation, which is practically a department of the parent company. These lines in one year carried 25,000,000 passengers. Various local street railway properties that originally served the larger centers throughout Connecticut have been absorbed into this system. They are now connected by interurban lines that for the most part lie along the lines of the steam roads. About 15 percent of the energy for development of electricity on this system comes from waterpower.

A convenient feature of interurban electric railways is the express service. Many lines operate combination cars, carrying both passengers and express. These lines reach many points not reached by steam roads, and give the rural producer and consumer and the merchant and consumer in the towns quick and economical express service. The opening of heretofore isolated districts by electric roads has increased their range of production and consumption, and thus trolley express lines prove valuable feeders for the traffic of steam roads. A trolley parcels post has been introduced by some of the lines. Five-cent stamps, sold by the transportation companies, are placed on parcels weighing 25 pounds or less, and these are taken on the regular passenger cars and delivered to the consignees anywhere along the route. If sent into another fare zone another stamp is required, thus making a parcel the equivalent of a passenger.

There is a very important work for trolleys yet to do in New England. There are many thriving towns that are yet isolated as completely as they were before the era of trolleys, and there are many towns that are yet without any public means of communication with the rest of the world. These towns are necessarily stagnant. This question of intercommunication is attracting attention, and as soon as conditions permit there will doubtless be more rapid progress in this matter. Trolleys as investment propositions have not been very attractive, especially the smaller lines. Some of them were unwisely located and have had hard work to meet operation and interest charges. Others made so much money at the start as to attract speculative interests and cause them to be drawn into consolidations, and often upon terms that made for them the same hard financial conditions. New England has not built trunk lines of trolleys as lavishly as other sections of the country. There is not here the same demand for them. Our cities and towns are being rapidly connected, and the urban population is being spread outward from the cities. Thus far in its history, the trolley has operated to fuse all New England, and eradicate provincialism, and it seems reasonably certain that it will continue to be an im-

portant element in industrial progress. The recent move on the part of the Boston Elevated Railway company, which contemplates a system of trolley transportation of the truck and milk farms produce to Boston from territory within a reasonable distance, is in line with the obvious development of the trolley for other than mere passenger-carrying purposes, and promises great specific benefits if properly worked out and applied. This plan will extend the area for production of fresh vegetables and fruit for the Boston market from about a twenty-mile radius to about a hundred-mile radius, and may, if the owners of the land coöperate efficiently, add materially to land values as well as open large opportunities in the produce market.

The railroads in New England are not wholly devoted to the development of their carrying business. They are broad enough to realize that their ultimate prosperity depends in large measure upon the character of the growth of the country through which their lines pass. So they have been studying the problems of civics and town and country life from the point of view of enlightened self-interest. The most notable, and noticeable, of these activities is perhaps the aid and counsel the railroads have given in the work known as village improvement, and this largely in the building of attractive stations and the embellishment of the station grounds. Superficial views make us in New England seem even in this to lag somewhat behind some of the show districts near New York, Philadelphia, and Chicago; though it is to be remembered that the most attractive railroad stations near New York are in New England, along the New Haven railroad in Connecticut. In this, as in all the aspects of our railroads, we have to plead the fact that we are regenerating old systems, and that in the time of the building of those old systems utility was all that was considered, or could be considered. We are doing very well in the way of replacing the old box-like structures with handsome buildings. It is realized by citizens and officials that the railroad station is the front door of the town; that the station is the criterion by which the town is

judged. All of the New England railroads have more or less fine stations, and all of them have many beautiful bits of landscape gardening along their lines. All of them endeavor to incite their employes to dress the grounds under their care with sward and flower and shrub, grown in attractive designs. A fine station not only furnishes a pleasing spot for the eye of the traveler to dwell upon, but it increases the efficiency of all the employes who see it daily, and promotes good feeling between the towns and the railroads. In this connection, beauty is a distinctly valuable asset, and the part the railroads are playing in this matter is an element in the growth of New England that deserves to be recognized and properly appraised. Yet it is necessary to admit that we in America lag behind some of the European countries in this matter, as well as behind what we should be. In England almost all railroad stations are attractive in themselves and made more so by tasteful landscape effects and handsome flower gardens. France is about on a par with America in this matter. In Holland the canals are veritable pathways of bloom, and in the Hague the traveler is first of all welcomed by gorgeous displays of glowing flowers. The stations in Italy are shabby and dirty, beauty-loving nation that it is.

New England railroads are usually found aiding whatever enterprise for the public good there happens to be on foot within their spheres, and they are to be commended for what they do in this line. It may be questioned however whether the railroads in New England are more conscious than in other sections of the fact that they are created and maintained by the public in a more emphatic sense than can be said of any other industry. In some essential particulars this vital fact is impressed upon the railroads in New England as it is not impressed upon railroads elsewhere. The control exercised over the railroads by the Massachusetts Railroad commission has kept them quite near to the public that not only created them but that sustains them, and the organization and methods of this commission are copied in all of the New England states, modified by the political control held in one or two of them by the railroads. The work of this commission, in

modifying and regulating the railroads in the interest of the public, deserves a chapter for the telling, but not in this connection. It is certain that that work has given the railroads operating in Massachusetts a distinct added value, by placing them right with the public and by standardizing conditions and thus assuring capital in its risks.

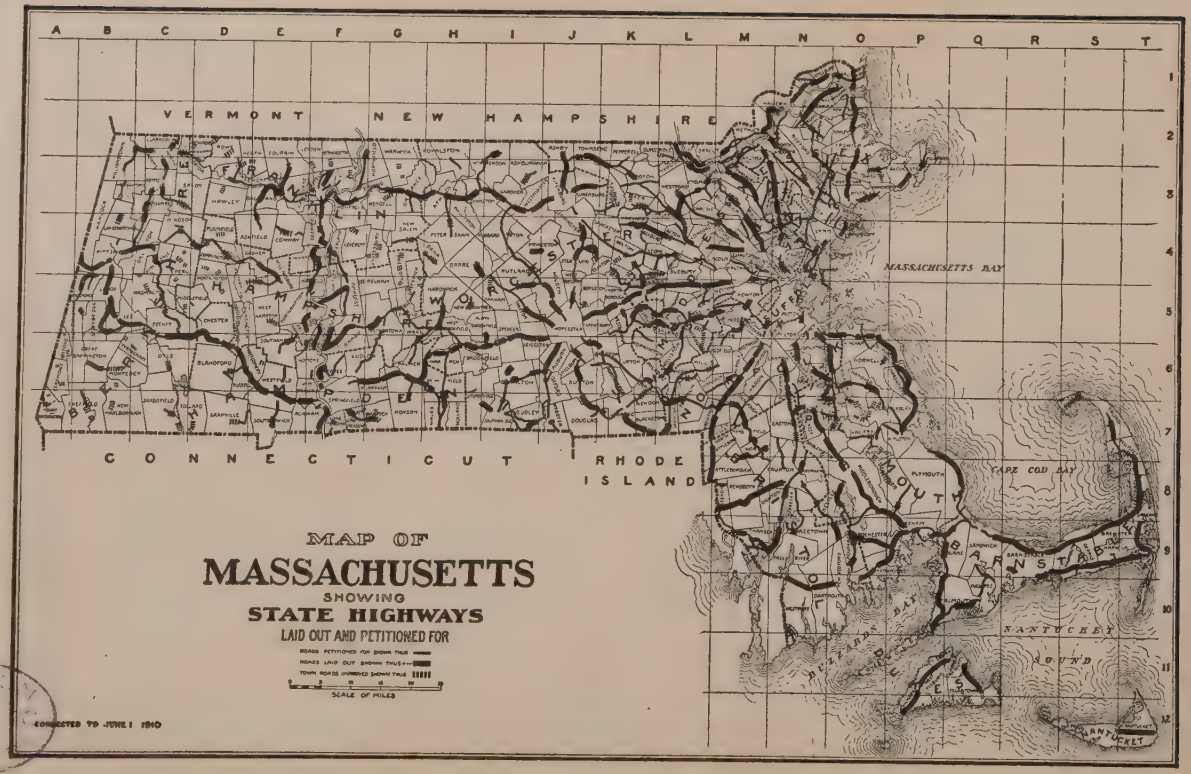
Local waterways, the first natural avenues of transportation in New England, are not devoted largely to the carrying of passengers. The freight that enters or leaves our ports, for the most part, comes from or is carried outside of New England. The Metropolitan Steamship company, operating boats direct from Boston to New York, as well as the lines running from Fall River, Providence, Hartford, New Haven, New London, and Norwich, are under the management of the New York, New Haven & Hartford railroad. This company has acquired the Commonwealth pier in South Boston to be used as a dock for a line of steamers which it intends to operate between Boston and New York through the Cape Cod canal. The building of this canal will give a new impetus to coastwise traffic. It will relieve the periodic congestion of traffic in Boston harbor by shortening the distance and opening a route that will permit boats to pass at all times, eliminating the delays consequent on the present necessity for favorable weather for small craft to pass outside around the cape. The Eastern Steamship company operates lines between Boston and Portland, Bath and Bangor; its International division extending into New Brunswick. Maine's almost numberless bays, islands and harbors present rare scenic wonders, the fascination of which induces multitudes of summer tourists into this section, via the boats. At Bangor, the head of navigation on the Penobscot river, rail connections are made to the inland lake and mountain resorts of northern Maine. There are many short lines reaching the almost countless beaches and resorts all along the coast of New England. Boston and Portland are the principal starting points for these small steamers.

Good Roads in New England

It is not possible to exaggerate the importance of good roads, nor to over-estimate the value of the service rendered by Massachusetts to the nation at large by its example and demonstration, and to its own citizens in a more concrete way by the actual money value good roads are bringing to them. The United States government has manifested great interest in good roads, and the Office of Public Roads of the Agricultural Department has recently made a very interesting report upon the relation of the public roads to the farmer, from which some of the pregnant conclusions are stated. This report is based upon careful and comprehensive investigations, and probably sums up the case of good roads as lucidly as has ever previously been attempted. In 1896 the Public Roads Office found that the average cost of hauling on roads as they then existed was 25 cents per ton-mile, the average haul 12.1 miles, and the average load 2002 pounds. In 1906 another government bureau computed the cost of haulage at 23 cents per ton-mile, and the average haul at 9.4 miles. During the year ending June, 1906, the railroads carried 265,000,000 tons of agricultural products. Of this probably 200,000,000 tons was hauled over country roads to reach the railroad shipping points. At 23 cents per ton-mile and an average haul of 9.4 miles the cost of this haulage figures at $432,400,000. Highway engineers compute the cost of hauling over broken-stone roads in good order at 8 cents per ton-mile; and over such roads in ordinary condition at 11.9 cents. These figures show that good roads ensure a saving to farmers of at least $216,200,000 a year, upon produce hauled to railroad stations, not reckoning the saving on product hauled to wharves and landings for shipment by water routes nor that hauled direct from farm to market. Good roads extend the areas within which perishable

products may profitably be raised, in proportion as they shorten the time and reduce the cost of reaching market or shipping point; and of course they enhance the selling value of land as they make it more profitable. Good roads increase the supply of food stuffs in the market, as they enable the farmer to haul all of his produce to market at regular intervals, whereas in the case of poor roads his trips to the railroad are irregular and it often happens that delays result in loss by spoilage or seasonable market declines. Good roads tend to stimulate freight traffic on railroads, and to equalize it. A very important effect of good roads is the spread of population in farming districts. The Public Roads Office ascertained that in 25 counties in states where there were only 1.5 percent of improved roads there was a population loss of an average of 3112 for each county during a ten-year period. In 25 other counties, in the same states, where 40 percent of the roads had been improved, there was an average increase in population of 31,095. The benefits of good roads may be discovered in every relation of life. In five good-road states, including the three southern New England states, the average percentage of improved roads is 34.92, and the average percentage of attendance of enroled school pupils is 77.14; in five bad-roads states these percentages are 1.51 and 59.16. Four good-roads states (3 of them New England states) show the percentage of illiterates born of native parents to be 0.34, and the percentage of good roads to be 30.55; while four bad-roads states show 4.76 and 1.51, respectively.

The highway situation in Massachusetts may be said at the present time to be probably as far advanced towards a solution as it is in any other of the states of the country. It was one of the leading states to do what has been so long done in France — treat the state highways wholly as a scientific and business proposition. The highway is the only chief means of transportation other than the railroad, and to the practical mind it appears to be quite as necessary that it be in as nearly a perfect condition as are the steam or electric railways. The custom, however, everywhere in the United


VERMONT
NEW HAMPSHIRE
CONNECTICUT
RHODE ISLAND
MASSACHUSETTS BAY
CAPE COD BAY
NANTUCKET SOUND
NANTUCKET
MAP OF
MASSACHUSETTS
SHOWING
STATE HIGHWAYS
LAID OUT AND PETITIONED FOR
ROADS PETITIONED FOR SHOWN THUS
ROADS LAID OUT SHOWN THUS
TOWN ROADS IMPROVED SHOWN THUS
SCALE OF MILES
CORRECTED TO JUNE 1 1910

States, even in the large cities, has been to entrust the care of this most important question to untrained men, whose principal qualification is political influence. Massachusetts early saw the necessity of improving its roads, and it therefore entrusted the preparation of plans and suggestions to a provisional commission composed of a road builder, a lawyer, and a geologist. After a year of research this commission reported a bill, which afterwards became the law, and which was the starting point of the present Highway Commission of Massachusetts. The theory of this enactment was that a system of highways should be laid out as state roads, which should be the main lines of traffic, and which should be built in the most improved way and maintained wisely. In other words, the system laid out should be a practical one, and the construction and maintenance should be technical and scientific. The French highway system is the best developed and the best maintained in the world, although individual roads in France, or anywhere else, are not better built than the best roads we have in Massachusetts. The practical success which has been attained here and elsewhere has undoubtedly led the other states to follow more or less closely this example, and it is now true that the full significance of improved highways has reached into almost every part of the territory of the United States and Canada.

There is held in Massachusetts the following theory as to the plan or scheme of a highway system throughout the State: That the State should build and maintain the main lines of travel leading from one city or town to another, and the principal radiating roads leading out from the systems of the larger cities. By this means the more important towns will be connected and the surrounding country put in communication with its market, and by the natural development of this plan through lines will be evolved which will lead from one end of the State to the other, as well as across the State, connecting with arteries of travel in adjoining states. This plan has been worked out to a very considerable extent. The map shown indicates what are considered the roads, when completed, that compose the state system. From one-third to

MODERN STATE ROAD, CAPE COD

one-half of these roads are now built. These roads are built in every instance in accordance with the needs of each particular case; that is to say, the method of construction is adapted to the soil, grade and other conditions, as well as to the traffic, so that there is no expenditure made which is not necessary under the existing conditions.

The method of building roads devised by Macadam, the Scotch engineer, one hundred or more years ago in England, has been the basis of all modern road-building, and although some of his theories have not been demonstrated as being the best for us, yet the basis of his plan has been the basis of modern road-building; and this, with the various modifications that I have suggested, was carried down to the period when the automobile became a noticeable factor. At first it was not known whether the automobile was an injury to the road or not, and many road builders expressed the opinion that no harm was done by it. It was soon found however that it was the most destructive element that exists, and that some method must be employed to overcome the destructive action of these swift-moving vehicles, as their action on the ground is totally different from that of horse-drawn carriages, or of other means of transportation. Tar, in its various degrees of refinement, oil and asphalt, besides various other so-called paliatives, have been used and tested. In Massachusetts the Highway Commission has conducted its experiments upon its own lines of investigation, and after a great number of trials and tests, employing every known suggestion, has by the elimination of unsatisfactory tests reduced what appeared to be practical methods to a very few treatments which are of value. By the use of refined tar reduced to given specifications, and asphaltic oil with specified characteristics, applied to the road, combined with gravel or stone chips, a permanent road can be built, or an old road reconstructed, that will satisfactorily withstand automobile traffic, as well as the ordinary wear and tear of horses' feet and steel-shod wheels. The conclusions that have thus far been attained, although not wholly conclusive, point to the maintenance of our roads when treated by thoroughly in-

ROAD AROUND "JACOB'S LADDER," MOREY HILL, BECKET

structed men at a less cost even than the maintenance of the old stone road before the day of the automobile. The Metropolitan Park Commissioners and the Boston Park Commissioners, as well as the municipal authorities of the cities, have worked with great skill and energy toward the same results, and it seems that a satisfactory solution is near at hand.

The effect of improved roads on the community is one of the marked features of modern life. No abandoned farms remain on improved highways. The distance that the truck farmer can successfully carry on his business has been nearly doubled by the building of improved roads. This of course increases the value of real estate in a very marked degree, and it has already improved, and will very much more in the future improve, the conditions of the farmer, and thereby benefit the entire community. The man of substance, whose business is in the city, is making his home in the country, and as the roads improve the distance from his business to his home can be steadily increased. Further than this, the fact that any region has good roads extended through it is an invitation to people outside to come within, and it is true that Massachusetts is now a place of great resort for the automobilists of other states.

Too much emphasis cannot be placed upon the importance of having and keeping good roads, but it must be realized that good roads cannot be built or maintained except under the direction of skilled and trained men kept constantly on the work. We never can have in Massachusetts a good system of highways, outside of that which is built and maintained by the State, until some such method as is used in France shall be adopted; that is, that nobody shall be employed on the roads, even subordinates, who has not been thoroughly trained in the profession. It should be wholly removed from any political influence whatever, and only men appointed to office who are fitted to carry out the work successfully.

The other states of New England have progressed along the lines of improving their roads to a greater or less extent. In Maine one commissioner is appointed by the governor, who supervises the expenditure of all moneys appropri-

ated by the State and spent jointly with the funds that are appropriated for the purpose by the various municipalities. The law has been in operation but a little over five years, and it is not fair to assume that the great area of the state of Maine can be rapidly improved under any possible conditions; but the purpose of the law is for the State to unite with the different municipalities towards the permanent im-

PELHAM MANOR STATION, ON THE N. Y., N. H. & H. RAILROAD

provement of such roads as appear to the people of the greatest importance. Six hundred thousand dollars was expended during the early half of the summer of 1910, solely by the State. One of the direct benefits derived from the methods that are employed is that the commissioner, by his judicious advice to the towns as to the way they should build and take care of their roads, can improve the conditions generally outside and above the specified amounts that are spent by the State jointly with the communities.

New Hampshire took the first step towards state supervision of highway construction in 1903, when the legislature

passed an act instructing the governor and council to investigate and recommend some systematic expenditure of state funds on highways. A law was passed in accordance with a recommendation of the governor and council in 1905, carrying an appropriation of $125,000 per year, to be apportioned to such towns as should make application for state aid. Under this act the towns were obliged to contribute a portion of the cost, varying with the valuation of the town, so that the entire fund expended each year under state direction, including state and town appropriations, was about $350,000. No radical change was made in this law until 1909, when the legislature passed an act making an additional appropriation of $1,000,000, to be expended in not less than four years on three certain trunk lines, running north and south through the State. Many miles of road throughout the State have been constructed and improved under state direction during the past six years, and the improvement, like that in Maine, has been extended beyond the construction of state roads and state aid roads.

While the state of Vermont has rendered aid in the construction of town highways for many years, yet it has not done so to such an extent as have the other New England states. The proportion of cost of new work borne by the State is comparatively small, consequently requests for state aid from towns are not as numerous as they would be if the State made more liberal appropriations and the State paid a larger proportion of cost. Nevertheless, many towns have received state aid, and much work has been done under modern and economical methods.

In Connecticut the main traffic roads may become state roads upon petition. The municipalities contribute to the construction cost, and one-fourth of maintenance. One commissioner has charge and supervision. Many miles of roads have been built. Rhode Island has an unpaid commission of five members, with a chief engineer as the executive officer. The entire cost of building and maintaining state roads up to 14 feet in width is paid by the State. Nearly all the main roads in the State have been improved in this way.

New England Commerce

The efforts of the early New England settlers were in the beginning directed mainly toward erecting sufficient shelter against the harsh elements and toward securing from the reluctant soil enough food to make existence possible. The rigors of their life ashore early drove them to the sea in search of fish with which to supplement their scanty crops. This in turn stimulated boat building. A new and profitable field of activity was thereby opened, and commerce sprang up almost as soon as a foothold had been established in the New World.

The first vessel built in Boston was the *Blessing of the Bay*, a sloop of 60 tons burden. This vessel was launched July 4, 1631, by a happy coincidence of dates, and was owned by Governor Winthrop. This was the modest harbinger of the great fleet that later was to carry the fame of New England shipyards to the remotest corners of the globe. In 1643 was built the *Trial*, of 200 tons burden — the first vessel to make regular trips between Boston and the West Indies. "On one day," so reads a well-known chronicle of the time, "in the year 1643, five ships sailed from Boston, three native built." From this it appears that in the very early colonial period the iron-hearted pioneers of New England turned their attention to trade and barter as soon as they found themselves able to produce a surplus with which to carry on exchanges.

The first product of the new region to have a commercial value was furs. A part of these were trapped by the settlers themselves. The greater part were bartered from the Indians in exchange for trinkets of all kinds — weapons, gunpowder, and most important of all, the staple Indian currency, wampum. The profits in this trade were large. The furs found a ready market in England, and the cost of transporting them was small as compared with cheaper articles of greater bulk. But the fur trade proved ephemeral. As settlements grew and

population increased the fur-bearing animals became more and more scarce, and by 1650 such pelts as New England still produced were found to be going down the Connecticut river to points further south for export. If commerce was to continue it was necessary to find other and more staple commodities as the basis for exchanges.

The commercial policy followed by nations of this period had a far-reaching effect on New England commerce. The "mercantile system" — a body of principles thought by the statesmen of the time to embody the highest wisdom in the regulation of the affairs of nations, and particularly the commerce between nations — was then in force. It was a period of frequent wars. The nations of Europe were jealously watching one another, in the fear that one would gain some undue advantage. The efforts of rulers were directed toward making their states self sufficient in an economic sense, believing such self sufficiency to be the material basis of military strength.

In England, for example, where the mercantile system was in full force during the seventeenth century, everything possible was done to encourage the domestic production of grain, in order that Englishmen might be independent of the outside world so far as their food supply was concerned; to encourage fisheries, because fishermen made good sailors, and they and their vessels constituted a naval reserve of the utmost importance to a nation which aspired to be a great sea power; to protect home industries, in order to give employment to native artisans and stimulate the production of all manufactured articles required for domestic consumption; to encourage the accumulation of ready money within the State, the theory being that money being the most convenient and available form of wealth, the nation which possessed the largest amount of it was best capable of maintaining itself in political and economic struggles with her neighbors. Accordingly, everything possible was done to promote the export of products to other countries and to discourage imports in return, in order that there might be what was termed a favorable balance of trade which would have to be paid for by the debtor countries in gold and silver. This had a most important influence upon

the early history of New England commerce. Colonies were regarded merely as feeders for the mother country. They were therefore to be regulated in such fashion as to yield the largest measure of benefit to the nation and government at home. England, for example, strongly discouraged the development of manufactures in Massachusetts and the other New England colonies. Its aim was to reserve the colonial market wholly for the home producers and not to allow colonial competition to assume serious proportions.

On the other hand, England encouraged the production of those articles which could not be produced to advantage at home. For example — timber, masts, spars, tar, hemp and other naval stores of the utmost importance to England as a great naval power, were at that time imported largely from the Scandinavian and Baltic countries. This source of supply was precarious and likely to be cut off entirely in periods of war. They therefore offered inducements to the colonists to turn their energies to the creation of materials for shipbuilding, and New England soon began to send great quantities of masts and spars to English shipyards. Agents of the Crown scoured the forests of the region searching for tall, straight trees that could be converted into towering masts for the frigates of the British navy. Such trees were marked with what was known as the " broad arrow " and, once designated, could not be cut by private individuals. In the winter when the snow had fallen these monarchs of the forests were felled, stripped of their branches, and slowly and laboriously hauled by great trains of oxen, frequently numbering fifty yoke or more, to the coast where they were hoisted on shipboard for shipment over seas. This cutting out and hauling of huge timbers at a time when power was furnished solely by man and animals, furnishes one of the most picturesque and spectacular features of the commercial activity of the period.

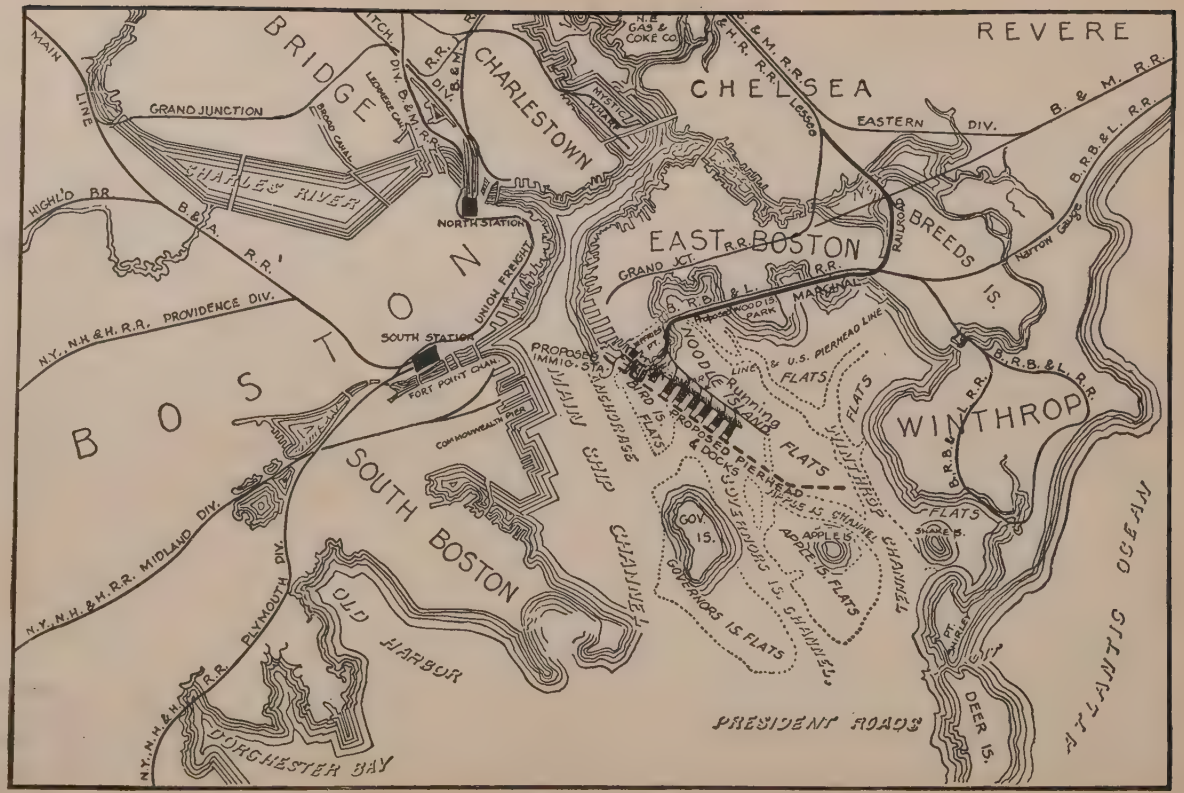
But Yankee knack was not content with merely furnishing materials for builders across the sea. Shipyards sprang up at Boston, Gloucester, Marblehead, Salem, Medford and other New England ports, and colonial shipwrights soon became the equals, if not the superiors, in skill of their fellow crafts-

men at home. To an increasing degree the oak and fir which covered the hills of the region was sent to England in the form of finished and seaworthy vessels which found eager purchasers on the other side. The importance of this industry is evidenced by a petition of Boston citizens in 1746 which terms shipbuilding "the ancient and almost the only manufacture the town of Boston ever had." At the shipyards along the Massachusetts coast an oak vessel could be constructed for $24 a ton, while in England and on the continent, a vessel of similar material and construction would cost from $50 to $60 a ton. It is estimated that at the outbreak of the American Revolution more than one-third the British tonnage then afloat had been built in American ports, a very large proportion of it in New England.

But aside from furs, naval stores, ships and potash (made by burning the trees cut down in clearing the land for agricultural purposes), England would not afford a profitable market for the staple products of New England. What were known as the "non-enumerated commodities," consisting of grain of all kinds, sugar, salt provisions, fish and rum, were barred from England altogether. The reason for this prohibition was the belief that if their importation was permitted they would compete with similar industries at home which it was the policy of the government for political and economic reasons to strongly encourage.

New England now found itself in a peculiar situation. Massachusetts and the other colonies of the region were increasing steadily in population. The dangers from Indian attack were no longer of serious enough character to materially distract the people from economic pursuits. A half century of fierce struggle and unremitting toil had sufficed to overcome the more serious obstacles to human habitation, and the colonists found themselves in the enjoyment of a greater and greater degree of physical comfort and material well being. Of luxury there was little, but rude plenty abounded, and as time went on the desire for the refinements of life increased with the increase of wealth.

But however much the New Englander might yearn for



MAP SHOWING PROPOSED BOSTON HARBOR IMPROVEMENTS

English broadcloths, house furnishings and table delicacies, he found himself unable to secure them in exchange for his surplus of dried fish, salt meats, grain, casks and staves. These were not wanted in England, but they were wanted elsewhere; and almost from the beginning of commercial activity in New England we find the colonial merchants seeking a market for their staples in southern Europe and the West Indies, whence they obtained the purchasing power which enabled them to buy from the mother country the manufactured articles and luxuries they desired. It was this need of a market for the staples barred from England by the laws embodying the principles of the mercantile system that led to the development of the most characteristic feature of the commercial activity of this period, namely, the trade with the West Indies.

The islands of the West India group during the 17th and early part of the 18th century occupied a much more prominent place in the world of trade than they hold today as the chief source of supply of sugar, a product to the use of which Europe had just accustomed itself. So profitable was the production of this new commodity, thus rapidly gaining in favor, that the planters of the West Indies devoted themselves almost exclusively to the raising of sugar cane. They were accordingly forced to look elsewhere for their food supply and for the staves and headings necessary to make the hogsheads in which their commodity was packed for shipment. Slave labor was employed upon the West Indian plantations. The cheapest and most satisfactory food available for feeding the slaves was found to be the dried fish of New England. Here, therefore, was exactly the market for which thrifty and enterprising merchants and skippers of the New England coast towns were searching.

Accordingly a brisk trade sprang up and very quickly took on a triangular character. The New England merchants sent to the West Indian plantations shiploads of dried cod, staves, headings, salt pork and beef, and in limited amounts, grain. These were paid for by bills of exchange payable in London. The West Indian planters shipped their sugar to England. With the bills of exchange received from the West Indian mer-

chants the colonists purchased in England and imported to New England the manufactured articles and luxuries which found a ready market there, and the cycle was complete. Such was the course of the chief trade of the period.

The more enterprising and venturesome of the New England merchants also sent their vessels over sea to the Catholic countries of southern Europe, where dried fish was a staple commodity in constant demand. With money and bills of exchange secured in payment, the vessels then sailed to English ports where cargoes of manufactured articles paid for from the proceeds of the sale of the fish were taken aboard and brought back to the colonial market.

But the West Indian planters did not always pay for New England products with bills of exchange. Boston and Gloucester vessels frequently brought back to New England great hogsheads of molasses, which was used as a substitute for sugar in sweetening coffee and food, but more important still, furnished the raw material of what soon became one of the leading industries of New England, namely, the manufacture of rum. This powerful stimulant found eager purchasers among the hardy fisherfolk constantly forced to endure the rigors of winter off the Newfoundland Banks, and also among the farming and hunting population in the interior. Rum was at this time regarded as a necessity, and those engaged in its production incurred no opprobrium thereby.

A few of the more daring and less scrupulous shipowners of the time also made rum the basis of deplorable traffic with the west coasts of Africa. Vessels would touch at various points on the Guinea coast, exchange their rum with native chiefs for gangs of negro slaves, returning with these to the West Indies, where they were sold to the proprietors of the sugar plantations for more molasses and some cash. This was another form of triangular trade looked back on with regret by New Englanders of the middle century who became the fierce champions of human rights and the most active opponents to the continuation of the institution of slavery.

Another boom for New England commerce resulted from the passage of the Navigation Ordinance in 1651, under the

administration of Cromwell. This law, aim maritime supremacy of the Dutch, provided that all e between England and its colonies in the East or should be carried in English built and manned vessel rd "English" here included the inhabitants of the and, with the exclusion of foreign built vessels from the British marine, there naturally sprang up an increased demand for the output of the New England shipyards. Moreover, the restrictions already referred to as to importing articles which competed with home production were not rigorously enforced. A policy of what was termed "salutory neglect" prevailed until about 1750. There was often open connivance between the customs officials of the Crown and the colonial merchants. Smuggling was an institution. Those engaged in it were frequently citizens of high standing and repute in the community. No disgrace was thought to attach to the evasion of laws generally regarded in the community as oppressive and unjust. It is reckoned that in 1700 fully one-third of the trade in Boston was carried on in direct violation of the letter of the law. Nor were the English merchants themselves so anxious to have this illicit trade checked, inasmuch as only through its continuance could the colonists secure the cash and bills of exchange necessary to pay for their importations from the mother country. It was estimated by Lord Sheffield that by reason of this contraband trade the colonial merchants were able to remit to England between the years 1700–1773 close to thirty millions of pounds, or about 150 millions of dollars, in payment for the products of British industries and British warehouses. D. A. Wells, the economic historian, makes the statement that "the colonists were a nation of law breakers. Nine-tenths of the colonial merchants were smugglers. One-quarter of the whole number of the signers of the Declaration of Independence were bred to the contraband trade. John Hancock was the prince of contraband traders, and, with John Adams as his counsel, was on trial before the Admiralty Court in Boston at the exact hour of the shedding of blood at Lexington, to answer for one-half a million dollars penalties alleged to have been by him incurred as a smuggler."

This wholesale evasion of the laws, induced by the restrictive commercial theories of the time, continued until about 1763. Then Grenville became prime minister, and undertook to enforce the laws more rigidly. In 1764 the "Sugar Act" was enacted, by which duties were laid upon indigo, coffee, wines, silks and calicoes, and other East Indian and oriental products. The following year the Stamp Act was passed, and although this act was repealed in 1766, it was followed by what were known as the Townshend Acts, which imposed a duty on wine, oil, paper, glass, lead, painters colors and tea. The violent discontent which these aroused, particularly in New England, likewise led to their repeal, with the exception of a duty of three pence a pound upon tea, which was retained for the purpose of upholding the principle of Parliament's right to tax the colonists.

From this time on the commercial history of New England is closely bound up with the series of events which culminated in 1776 in the outbreak of the American Revolution. The Boston Tea Party is too well known to need comment. An amusing sidelight on the thrift of our patriotic forefathers is found in the story that many of the leading citizens of Boston who participated in the dumping of the tea into the harbor wore heavy, wide-topped boots on that eventful night. When these worthy gentlemen returned to their homes after performing the deed which electrified the western world, their good wives were rejoiced to find these same boots partially filled with the contents of the obnoxious tea chests! In spite of the non-importation agreements which had been entered into all through the region, it is safe to say that the good ladies were not wholly deprived of their customary cup of the fragrant beverage.

While the Revolution was in progress commerce declined. The vast fleet of England not only blockaded American ports, but controlled the high seas, and only a few adventurous merchants dared risk the danger of capture by English vessels of war. During this period however we find the beginnings of that trade with China and the East which later took on considerable proportions. Smuggling of course continued active

during the time of hostilities, but the energies of the people were so fully given to the struggle that the volume of exchanges was comparatively small. This cutting off of the importations naturally stimulated domestic production, for the colonists made desperate efforts to provide themselves with those articles formerly supplied by English manufacturers; and at the close of the Revolution, New England had learned to produce for itself a considerable amount of the articles formerly brought by her ship captains from over the sea.

With the signing of the Treaty of Paris, in 1783, and the resumption of peaceable commercial relations with England, the American markets were flooded with British products. Native manufacturers struggled weakly for a time, but soon succumbed. The energies of the new nation were again devoted largely to the purely extractive industries, and to exchanging the surplus of raw materials which the rich natural resources of the country yielded for the finished products of the older nations of Europe. The wharves of New England ports were crowded with British sail, and native merchants complained bitterly that while their rivals were allowed to trade freely with the United States, they on the contrary were barred from similar privileges in ports under control of England. Even the profitable West Indian trade was reserved exclusively for British built and manned vessels, and while the rigor of these restrictions was considerably abated by the wholesale smuggling trade which went actively on, they none the less constituted a heavy handicap upon the commerce of New England.

This condition of affairs continued until the outbreak of the French Revolution. Soon after this event England found itself engaged in a life and death struggle with its ancient enemy, France. The English navy controlled the seas. A blockade of all Europe was declared. Napoleon retaliated by forbidding vessels of any nation in alliance with him to trade with English ports. Scores of French privateers were loosed to prey upon English merchantmen, and the commerce of European nations was seriously interrupted. The United

States found itself the one great neutral carrying nation of the world, and from 1793 to 1800 the volume of foreign trade carried in American bottoms increased by leaps and bounds. During this period New England sea captains sailed their splendid clipper ships to every port of the world, and soon became recognized as the ablest seamen afloat. While frequently subjected to the indignities of search and impressment, and occasional confiscation, by the armed ships of the warring powers jealously bent on preventing the enemy from obtaining any advantage, they none the less prospered mightily and reaped a rich return.

This prosperity suffered a temporary check from 1801 to 1803 through the Treaty of Amiens, which stopped hostilities for the time and deprived America of her advantage as the great neutral maritime power. With the resumption of the war, however, in 1803, commerce revived again and continued with unabated activity until 1806.

At this time developments began which once more interrupted our foreign trade and threw the nation back upon itself in its efforts to supply its own needs.

President Jefferson was a strong advocate of a policy of non-resistance as applied to the foreign relations of the United States. When the numerous insults and indignities to which American merchantmen were subjected by the warring powers of Europe had aroused a persistent public clamor for retaliation, he secured the passage, in 1807, of the Embargo Act. This measure forbade any American vessel to leave port to engage in foreign trade — the theory being that the operations of the American merchant marine were so essential to the economic existence of the countries of Europe that the discontinuance of those operations would quickly bring the belligerents to terms and ensure proper recognition and respect for vessels flying the American flag on the high seas. But the result was not that expected. France and England stubbornly refused to come to terms and somehow managed to get along without the services of American skippers. Domestic shipping rotted at the wharves, and New England merchants began to demand the privilege of running the risk of

capture and confiscation of their ships and cargoes rather than see their vessels inactive and decaying at home.

In the following year the Embargo Act was replaced by what is known as the Non-Intercourse Act, a measure similar in character but less sweeping in its provisions. Trade then revived somewhat but had regained only a fraction of its former volume when the outbreak of the War of 1812 again dealt it a staggering blow. During this conflict our ports were again blockaded by England, and our merchantmen harried and captured by English frigates and sloops of war. By 1814 the foreign trade of the United States, which in 1807 amounted to over 108 millions, had declined to less than thirteen millions of dollars annually.

As a result of this almost total destruction of our trading activities, hundreds of vessels were sold and the capital thus realized invested in manufacturing enterprises of one kind or another. The basis of many of the fortunes of the old families of the region were laid in this period of stress. Francis C. Lowell, in 1814, established at Waltham, Mass., what is said to have been the first cotton factory in the world in which all the processes from the preparation of the raw material to the weaving and finishing of the cloth itself were carried on in one establishment and under a single administration. Within a few years staple cotton cloths of New England began to compete with the product of English mills, not only in the home market but in South America and the West Indies, as well. A great variety of other manufactures sprang into existence, and the eagerness and promptitude with which the people of New England entered into this new field of activity foreshadowed the later industrial supremacy of the region.

At the close of the war in 1816, and with the resumption of commercial relations with England, English manufactured products, which had been piling up in warehouses awaiting the declaration of peace, again flooded the American market, seeking purchasers at almost any price. The newly established industries, brought into existence by the enforced production of the Embargo and war period, were not able to stand com-

petition of this character. A vigorous demand arose for protective duties, and in the new tariff law of 1816 we find the protective principles consciously applied.

On land, transportation facilities — the arteries of commerce — were almost entirely lacking. Of good roads there were none in the interior, and only a few along the natural highways of travel between the great centers of population. Families in the remote country districts were largely self-sufficient economic units in themselves. Wants were simple, and satisfied mainly from the products of farm and stream. Every household had its spinning-wheel, every neighborhood its loom. During the long winter months the women and girls of the household spun the wool clipped from the fleece of sheep raised at home, and either wove it into the durable fabric known as homespun, or mixed the wool with linen, the fabric thus made being known as "linsey-woolsey."

The isolation of life of this period can hardly be comprehended in this age of rapid steam and electric transit. Men and women were born, lived and died without traveling twenty miles from the place of their birth. Such travel as there was, was done mostly on horseback, and chiefly for the purpose of visiting relatives or of securing from the nearest village store the simple necessities of life (such as salt, iron and tools) which could not be manufactured at home. The country storekeeper was the trade autocrat of the period. Exchanges were carried on by means of barter. Yarns, homespun cloth, salt meats, dried fruits, handwrought nails, clapboards, staves, headings, etc., were collected at the country store. When winter set in and snow covered the ground, these products of the region were transported on sledges to the nearest city markets and exchanged for staple groceries and other manufactured commodities which the simple life of the rural regions demanded. Occasionally the people of the neighborhood, dissatisfied with the terms offered them by the local storekeeper, would band themselves together, organize a sledging expedition, and carry their own products to the city, thus disposing of them to better advantage and bringing back the articles which they required. Internal trade, restricted by the

difficulties of transportation, was at this time necessarily of far less importance than foreign trade.

It is interesting to note to what a remarkable degree the country store under these conditions became the training school for the active men of the period. A study of historical biography will show that a very large number of the men who attained prominence in commercial life and in politics, spent their boyhood behind the counters of some local trade depot, where their wits were sharpened, and their bargaining propensities developed by their business dealings with the thrifty and shrewd farmers of the neighborhood.

After 1820 the means of transportation were improved. The first advance was the building of turnpikes by private companies, who charged a toll to secure a return on their investment. Then came the steamboat — a more important factor, however, in developing the internal trade of the West than of New England. The rude, steam-propelled river craft of the period could almost go, as one writer put it, " wherever the dew fell," and did much to stimulate commercial life of those communities having access to navigable waters. Later, from about 1825 to 1850, numerous canals were built furnishing the connecting links in the system of natural waterways. Finally after 1830 the construction of railroads began, marking the last step in the development of transportation agencies, until the recent appearance of electric trolley lines.

While internal trade was thus slowly and laboriously making headway against the obstacles due to the lack of means of transportation on land, a brisk coasting trade was carried on. Cotton manufacture was making rapid strides in New England and the mill owners were demanding more and more cotton. The policy of protection, begun in 1816, was continued, the scale of duties steadily rising until about 1830. The South, moreover, needed as clothing for her slaves the cheap cotton cloth manufactured in New England, and furnished a steady and constantly increasing market for it. The people of the South, devoting their efforts mainly to the production of cotton, were forced to buy their manufactured articles and to

a considerable extent their food supply from the North. They naturally opposed protective tariffs, which increased the price of the former, and favored free trade. After 1830 there began a gradual reduction in the rates of duty until by 1842 they had reached an average level of 20 percent. The Tariff Act of 1846 again increased the duties to an average of about 30 percent, after which there was a steady decline until the outbreak of the Civil War in 1860.

Boston was then, as she is now, the second port of the country in regard to volume and variety of imports from abroad. These imports together with domestic manufactured products, and to some extent the food products of the fisheries and the farm, found a ready market south of Mason and Dixon's line. They were paid for in money or bills of exchange obtained through shipments of cotton to Europe, chiefly to Liverpool. There was thus built up a second form of triangular trade — food stuffs, manufactured articles and imports from New England to the South; cotton from the South to England; manufactured articles from England to the ports of New England. Most of this trade was carried on in coasting vessels which under the registry laws, still in force, had to be American built and manned.

New England vessels controlled a large part of this trade. Since 1800 the wooden sailing ship, the best types of which were turned out from New England shipyards, had been admittedly the finest vessels afloat, both as regards speed and carrying capacity. In the latter part of the period under consideration a number of events had combined to enormously stimulate the building of these wooden ships. The California gold discoveries created a sudden and feverish demand for transportation to the Pacific coast by way of the Horn or the Isthmus of Panama. Political disturbances in Europe between 1840 and 1850 caused a wholesale emigration to this country, and an increased demand for passenger accommodations in American vessels. The Crimean War forced European governments to buy or charter many American vessels for transport work. As a result, it is estimated that in 1855 the tonnage of the United States, including that engaged in the

coasting and internal trade, was about one-third the total tonnage of the world.

But a change had gradually taken place in the character of the merchant marine which was destined ultimately to undermine the maritime strength of the nation. In the decade 1830 to 1840 successful experiments had been made with steam-driven vessels in the trans-Atlantic service. By 1840 a few iron vessels were built and were beginning to demonstrate their superior durability and carrying power. New England shipwrights, however, confident of the superior excellence of their splendid clipper ships, refused to notice the changes that were taking place and still confined their efforts to the production of wooden vessels. By the outbreak of the Civil War about one-fifth of the tonnage being constructed was steam driven, but practically all of the vessels were constructed of wood. England, on the other hand, enjoying the advantage of a well-developed iron industry, had been quick to see the possibilities of the new type of vessel, and her shipyards were more and more turning their attention to the building of iron steamers.

When the Civil War broke out, the construction of merchant vessels was seriously interrupted, the shipyards being forced to turn their energies mainly into the building of war vessels needed to maintain the rigid blockade of southern ports, and to protect our shipping on the high seas from the depredations of southern privateers. This interruption to the building of merchant tonnage, coupled with the wholesale capture of trading vessels flying the American flag, by such southern cruisers as the *Alabama*, and the prohibitive insurance rates which the danger of such capture entailed, caused many shipowners to sell their vessels abroad and devote the capital thus released to manufacturing enterprises or to the opening of new lands in the West. It is stated on reliable authority that at the close of the Civil War the merchant marine of the United States had declined by more than one million tons. Meantime England had taken advantage of the distraction caused by the Civil War and had established beyond question her supremacy in the building of iron steamships, which by

1870 had come to be recognized as the superior of the old wooden type of vessel. Accordingly, it may be said that the close of the period of 1816 to 1860 saw the decline of New England's shipping activity well under way.

Several causes prevented a revival of shipbuilding in New England after the war. Manufacturing, enormously stimulated by the high tariff of the war period, had absorbed a large amount of the available capital of the region and was constantly demanding more. The high prices created by the interruption of productive activities and by the high tariffs had also made the building of vessels in this country more costly than abroad. This was particularly true of iron vessels. Moreover, the great western country was being rapidly opened to development. Railroads had reached the Mississippi valley before the close of the war, and by 1870 the first railroad across the continent had been built. The virgin resources of this vast region thus thrown open for exploitation offered a most attractive field for investment and larger returns than could be secured from investments in shipping, where the competition encountered from England and the other nations of Europe was keen and continuous.

But while the shipbuilding industry did not after the close of the war have the revival which might have been expected, there was an enormous development of the means of transportation and communication on land. Railroad building like shipbuilding was checked during the war; but by 1880 the number of miles of railroad in the United States was three times what it was in 1860 — one mile for every 571 inhabitants, and the people of the United States were better supplied with railroads than those of any other country. Most of the new construction took place in the states of the Middle West and Northwest, and afforded an outlet for the grain, corn and cattle of which these states were beginning to produce enormous quantities, and which they now began to pour into the world's markets.

The important advantage which it would have been to Boston to have been the terminus of a through railroad line to Chicago, Buffalo and the lake ports, from which the grain,

corn and cattle of the Northwest came, is evident. New York, Philadelphia and Baltimore, the Atlantic ports with which Boston competes for this traffic, are each the terminus of such lines. In view of the large amount of Boston capital invested in western railroads and of the fact that once at least Boston had the opportunity to secure such a through line on favorable terms, it is astonishing that Boston is not, and never has been, the terminus of such a through railroad line.

But the commerce of Boston has not lagged. On the other hand, it has steadily increased. In 1885 (the year when the Boston Chamber of Commerce was founded) Boston exports amounted to $54,521,579. Last year they aggregated $72,936,869. Our imports show a still more remarkable increase. In 1885 their value was $53,576,300. Last year they aggregated $127,031,679, and were exceeded only by the port of New York. Accurate statistics in reference to the volume of New England's domestic commerce — the trade between New England and the interior parts of the country — are not easily obtainable; but when one is told that the value of her commerce with the interior has been conservatively estimated to be ten times that of her foreign commerce he begins to realize as he probably never has realized before the tremendous volume of New England's commerce.

And one must not forget the part which the New England railroads have played in producing this result. Alive to the situation, with notable courage and zeal and commendable public spirit, they have at their own expense constructed docks capable of accommodating the largest trans-Atlantic steamships, erected elevators equipped with the best modern machinery and facilities, and made joint traffic agreements with the western railroads, giving to Boston the benefit of advantageous through rates. The effect of this is shown by the fact that, whereas Boston in 1885 received from the West 1,835,815 bushels of wheat, last year it received and exported 9,465,984 bushels— more than any other port in the United States except New York.

But gratifying as the facts given above in regard to our

BOSTON CHAMBER OF COMMERCE BUILDING

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commerce may be, they are by no means the measure of the commerce, either foreign or domestic, which New England ought to have. New England has abundant capital for investment. Boston's per capita wealth is acknowledged to be greater than even that of New York City. There are on deposit in the savings banks of New England $1,262,000,000 — one-third of the total savings deposited in such banks in the United States. Massachusetts banks alone hold one-fifth of this amount. The paid in capital of national banks in the New England states aggregates about $102,000,000 — about one-ninth of the total banking capital of the national banks of the United States.

Boston enjoys the immense advantage of direct water connection with the South Atlantic and Gulf states. They furnish a splendid market for the manufactured products of New England; and we, on the other hand, furnish a splendid market for, and need, the raw products of those states. Yet until recently nothing had been done by New England to avail herself of this asset, and to develop water transportation — the cheapest means of transportation there is — between Boston and the Gulf ports. Indications that the business men of New England are at last beginning to realize the important value of this asset are at hand, and it is confidently expected that within a short time we shall see steamships owned by New England capital and controlled by New England men plying between New England and the South Atlantic and Gulf ports.

Boston has over 40 miles of water front and one of the finest harbors in the world. She has some modern docks — mostly built by the railroad companies. But it is only within the past year that the first step has been taken toward the development of a comprehensive scheme of docks and terminal facilities, such as any European port of equal size would have had years ago. The change in the harbor line recommended by the Chamber of Commerce, and adopted by the legislature last year, furnishes for development an area large enough to accommodate a system of docks the superior of any on this continent, with abundantly adequate railroad terminals, warehouses, industrial plants, etc., in the rear; and the state of

Massachusetts has contributed $3,000,000 to make a start in the development of these docks.

No city of equal size on the Atlantic coast is so favorably situated for steamship communication with England and the European continent as Boston. It is 200 miles nearer to Liverpool than New York. If steamers of speed equal to those now running to New York plied between Boston and Liverpool, for instance, mail matter from New England would reach Liverpool eight hours sooner and from Chicago and the West over five hours sooner than it now does from New York. The Post Office Department sends its mail matter by the quickest route. So valuable to our railroads has been the privilege of carrying the mails that more than one instance might be cited of their having spent hundreds of thousands of dollars to shorten their route by one hour. Why should not a swift steamship

APPROACH TO NEWTON HIGHLANDS STATION, ON THE BOSTON & ALBANY RAILROAD

line run between Boston and Liverpool, and on the same principle demand and receive the bulk of our European mail?

These, and many other similar suggestions that might be made, show the possibilities in the development of New England commerce. Meanwhile, we may congratulate ourselves that in many lines of trade and commerce Boston, the principal port of New England, now leads the country. It sells about 100,000,000 pairs of boots and shoes annually — more than any other city in the world. It sells annually 32,000,000 pairs of rubber boots and shoes — also more than any other city in the world; it imported in the year ending June 30, 1909, $150,861,105 worth of wool — nearly three times as much as was imported at any other port; it received and marketed last year $10,500,000 worth of fish — more than any other American city, and exceeded by only one port in the whole world; it sells annually $100,000,000 worth of dry goods, $50,000,000 worth of leather, $25,000,000 worth of clothing, $6,000,000 worth of confectionery, $3,500,000 worth of musical instruments; but why prolong the list? Indications are not wanting that the near future will see a rapid increase in the development of New England's commerce. Boston is the natural port for Canadian products. The unnatural barrier erected by men, and magnified by our tariff laws, has thus far to a considerable extent prevented Boston from becoming what nature intended it. But reciprocity with Canada, more and more insistently demanded, must come sooner or later, to the advantage of both countries and to the port of Boston. The growing trade with South American ports — until recently steadily neglected — will soon be still further stimulated by the opening of the Panama Canal, the latter consuming an ever-increasing share of the products of our industries. But, best of all, and most encouraging by far, is the spirit of coöperation now being slowly but surely developed in New England — the spirit which makes all things possible, and which, if it keeps on at the rate attained in the last few years, is destined to take Boston out of its state of lethargic contentment and put it into the front rank of the cities of the world.

New England Summer Resorts

New England is distinctively the summer playground of the eastern portion of the United States. From the industry of catering to the comfort and pleasure of vacationists, summer residents, and casual tourists, the people engaged in that business here derive an annual income of about $60,000,000, and the time is not far distant when this amount will have been increased to $100,000,000 yearly. Indeed, in the entire range of New England possibilities, there is nothing more promising for the future than the development of this important and rapidly-growing business, for that is what it is today.

Boston, so often referred to as "the Hub of the Solar System," is literally the "hub" of this vast volume of tourist and vacation travel; and in this respect it is practically an all-the-year-round proposition, as indeed the New England vacation field itself is gradually becoming.

America's ideal "convention city," by reason of its location, attractions of climate, history, and generally unique individuality, the New England metropolis, is in the very nature of things a great clearing-house of tourist travel, receiving and sending out a vast army of transient visitors coming from every state of the Union and province of Canada, and from nearly every country in the world, and scattering to all the multitude of rest resorts and shrines of history in the six New England states, Quebec, the Maritime Provinces, and Newfoundland.

Nor is Boston's primacy as a tourist rendezvous a merely local matter, for of late years it has come to be a favorite halfway station and departing point for thousands of American and Canadian voyagers to Europe, many of whom are attracted hither not only because of the well-known excellence of the trans-Atlantic steamships plying from Boston, but because of the ambition that possesses every normal American

to see this attractive city and its picturesque and historic environs. Thousands of first-class passengers are carried in and out on the magnificent steamships of the Cunard, White Star, and other lines that regularly ply between this city and Liverpool, London, and other foreign ports; and the lists frequently include people from California, Georgia, and Manitoba.

In New England as in no other section has been abundantly demonstrated the truth of the statement that "travel is a good thing for the traveler, for the railroad, and for everybody whom the traveler meets or with whom he sojourns." It is equally true of this section, as the same writer has asserted, that "the summer visitor has been the builder, to a great extent, of prosperous towns and communities that but for his visits would have remained undeveloped." In a broad sense of the word, New England itself has been enormously developed by the summer visitor, especially during the last twenty-five or thirty years. Today it challenges the attention of the entire world by reason of its remarkable popularity as a vacation territory, appealing to people in every walk of life, from President of the United States down to bank-clerk and shop-girl.

Nowhere else is there a territory of similar area containing so great a diversity of physical attractions, or a summer climate more conducive to outdoor life and enjoyment. This is the real secret of New England's popularity as a resort. There has been nothing forced or artificial in its development along these lines. Its superb climate, its attractive scenery, and its historical associations, have made it what it is today — the people's summer pleasure ground. The arts of advertising and modern publicity have played their part in its upbuilding, but only an incidental part.

Each of the six states that make up New England is a natural summer vacation resort, and one or two of them are forging to the front as cold-weather winter resorts, after the fashion of Canada and Switzerland. Maine alone has 10,000,000 acres of wild forest lands, diversified by more than 2000 lakes and streams, and with 2500 miles of sinuous and rugged

MT. WASHINGTON FROM BASE STATION, TRAIN GOING UP

sea-coast in addition. New Hampshire, also bountifully endowed with lovely lakes, has 400 square miles of mountain country, ranging in altitude from 2000 to 6000 feet above the sea. Vermont is another smiling summer land of mountains, valleys, lakes, and rivers, and with wonderful possibilities as a vacation country that have not dawned upon even its people as yet. Massachusetts has its world-renowned North Shore, whither millionaires and foreign ambassadors flee the heat of New York and Washington; and likewise it has its sandy Cape Cod, its rolling Berkshire-Hoosac country, its picturesque Connecticut and Deerfield river valleys, not to mention its Concord and Lexington, its Plymouth and Provincetown, its Salem and its Newburyport. Rhode Island, the smallest of the sextet of peerless vacation commonwealths, has its wonderful Narragansett Bay, its gilded Newport. Connecticut, with its great stretch of Long Island Sound shore, and its beautiful rural country, also holds high rank as a summer resting section.

Where can there be found, within such limitations, such a marvelous mingling of seashore, mountain, lake country, farm land and wilderness, with all that they stand for in brain and body building, in outdoor recreation, in mental and physical recuperation, and vacation satisfaction?

This is why New England has grown to be the peerless vacation resort it is today; and this is why Boston, in addition to its high standing as a commercial, manufacturing, and educational center, is also the country's chief distributing center of tourist travel and the American Mecca of every organization that can muster enough adherents to hold an annual convention.

In the building up of New England as a sixty-million-dollar vacation section, the transportation companies serving this territory, and particularly the railroads, have been factors of no small importance. To a large extent, the subject may well be considered in connection with these different lines.

Thus, the Massachusetts, Rhode Island, and Connecticut territory lying south and east of Boston has been developed, in part, by the New York, New Haven & Hartford rail-

road and its predecessor companies. The most phenomenal growth in this large "New Haven" territory has been in the Cape Cod and South Shore sections of Massachusetts. In this part of New England there has been a remarkable increase in the summer population of the numerous seashore resorts scattered along the coast line of Massachusetts Bay, Cape Cod, and Buzzards Bay. Cohasset, Scituate, Plymouth, Marshfield, Buzzards Bay, Onset, Chatham, Orleans, Marion, Provincetown, Martha's Vineyard, Nantucket and many other attractive places have become great hotel, cottage, and private residence centers, and have been selected as the summer homes of eminent Americans, like the late President Cleveland and Joseph Jefferson.

The immense growth in vacation-season travel to these points is reflected in the vastly increased transportation service, as compared with a generation ago. The accommodations provided by the railroad for week-end visitors are particularly extensive, and for the benefit of the wealthier class of summer residents, made up principally of Boston business men and their families, exclusive trains of parlor cars, patronized only by regular subscribers, are run throughout the season.

The Cape Cod and southeastern Massachusetts section offers all the typical American aquatic pleasures, including bathing, fishing, boating, and yachting. The water on the more southerly shores is considerably warmer than that of Massachusetts bay, and this is one of the few places in New England that afford the rare sport of blue-fishing. In no section can a coat of summer tan be acquired more quickly or effectively than along the sandy shores of Cape Cod.

Plymouth, with its famous "Rock" and its mementoes of the Pilgrims, and Provincetown, with its new and stately monument commemorating the first stopping place of these pioneer New Englanders, naturally attract many thousands of visitors annually, by reason of their historical significance. Both places may be reached from Boston by steamboat, as well as by train. A steamer trip down Boston harbor, or to the numerous excursion points outside of it, like Nantasket, Bass Point, Salem

Willows, or Gloucester, is one of the chief delights of a summer sojourn in the Modern Athens. A million people make such trips every year.

The Rhode Island resorts, forming part of the New York, New Haven & Hartford group, are principally found in the vicinity of Narragansett Bay, one of the most attractive of our New England water sheets. Newport, with its magnificent millionaires' estates, its casino, and its wonderful shore drive, draws the transient summer tourist like a magnet. Block island, in Long Island sound, is a semi-isolated resort, like Martha's Vineyard and quaint Nantucket, in Massachusetts waters; and is as popular with the Rhode Islander as are the others with the people of Massachusetts. Watch Hill is another favorite nearby resort, and Narragansett Pier has achieved national fame.

Connecticut has a long list of delightful seacoast resorts, extending from the Rhode Island boundary clear down to the New York line, and including New London, with its magnificent nearby beaches. The ride over the "Shore Line" of the New York, New Haven & Hartford railroad between Providence and New York is one of the most picturesque in all New England. Connecticut also has some exceedingly attractive interior vacation centers, like Pomfret and the Housatonic valley section. In spite of this already marked growth, the real development of this vast summer recreation territory is still in the future. In the years to come, during the warm season, it will simply swarm with rest-seekers from the big cities to the South.

In the territory under consideration, annual events, like the great Brockton fair and the lesser one at Marshfield, attract thousands of visitors and tax the facilities of the railroads and electric street railways. The latter nowadays offer their services to tourists in almost every part of New England, and many do most of their vacation traveling on them.

Another glorious vacation country, served by both the New York, New Haven & Hartford and the Boston & Albany railroads, is the famous Berkshire region in western Massachusetts. This beautiful country of hill and vale is virtually a

continuation of the Green mountains of Vermont. It reaches its climax of natural beauty in the vicinity of Pittsfield, Great Barrington, Lenox, Lee, and Stockbridge, although it is exceedingly attractive from Springfield on. Lenox, Great Barrington, and Stockbridge may be safely classed among the fashionable resorts of the United States, being inland Newports on a small scale. The air here is clear and bracing and the views superb. Golf, tennis, horseback riding, and automobiling are the favorite pastimes, and social life at some of the resorts is very gay. Pittsfield, in the recent past, has been the scene of many interesting amateur balloon ascensions, these having paved the way, in a measure, for the establishment of the new aviation field at Atlantic, Mass., which has added yet another summer attraction to Boston's already long list.

Some of the most attractive of Boston's famed suburbs lie along the line of the Boston and Albany railroad, this leased connection of the New York Central system being one of Boston's main avenues to the West. These include Brookline, the wealthiest town in the world and one of the most beautiful; Newton and Wellesley, the last-named the seat of the noted girls college of that name. Worcester, the second largest city in Massachusetts, possesses Lake Quinsigamond, one of the fairest water sheets in this part of New England. By fast trolley, as well as by train, the tourist can visit most of these attractive places, including Riverside, the famous canoeists rendezvous on the Charles river.

Attractive and popular as are the sections just described, the true vacation country of New England, after all, is that which lies to the east and north of Boston — the country of the mountains, of the great lakes, the deer-haunted wilderness, and the far-stretching unbroken sea-coast of three states and as many Canadian provinces. It is in the region dominated by the Boston & Maine, Maine Central, Central Vermont and Bangor & Aroostook railroads, that the large majority of vacationists foregather from June till October, to disport in the stimulating Atlantic surf, climb the steep slopes of the breeze-swept White and Green mountains, and revel in the quiet restfulness of hospitable farms.

Maine, New Hampshire, Vermont, and a portion of Massachusetts, are included in this highly favored domain, and a day's ride in parlor car or a night's journey in sleeper brings the tourist in touch with the greater part of it. There is practically no form of outdoor existence or enjoyment possible to the United States that is not available here; and to the long list of summer pleasures has latterly been added the delights of winter outings, with their snowshoeing and skiing expeditions, tobogganing, and other Swiss-like diversions.

In this wonderful playground of the people also are to be found some of the largest and most magnificent hotels dedicated to the comfort of vacationists that the nation can boast. There could be no better index of the wonderful growth and popularity of New England as a tourist section than the existence of the sumptuous hostelries that draw happy throngs to Bretton Woods, Poland Spring, Rockland Breakwater, Bethlehem, Profile, New Castle, and Bar Harbor. The influx of summer visitors has not only brought a vast increase in the number of hotels, but it has distinctly raised the tone of all of them. The accommodations offered the vacationist in New England, whether it be at the palatial million-and-a-half-dollar hostelry at Bretton Woods or the humblest farmhouse in the most sequestered valley of New Hampshire, are the best that can be obtained for the price in any part of America.

The individual resorts in this remarkable northeastern portion of the United States are numbered almost by the hundreds; their patrons by the tens of thousands. That part of Massachusetts itself north of Boston and the Fitchburg division of the Boston & Maine railroad has a large number of them, not including the places of exclusively historic or literary interest, like Concord, Lexington, Haverhill, Salem, Ipswich, Amesbury and Newburyport. Mt. Wachusett, in the vicinity of Fitchburg, and surrounded with a setting of beautiful rural scenery; Mt. Tom, near Holyoke and Springfield; the Massachusetts section of the lovely Connecticut valley; Lake Pleasant; historic Deerfield; Greenfield, the popular rendezvous of long-distance automobilists; the picturesque Deerfield river and valley; the Hoosac mountains, bored by

SPORTSMEN'S CABINS AT HEALD POND, MAINE

the famous tunnel of that name; Greylock mountain, with its wonderful views; and scholastic Williamstown and ecclesiastical Northfield, are but a few of the numerous points and places of interest to tourists lying west from "the Hub."

Most fascinating of all however, because of its wonderful commingling of ocean, rocks, and modern architecture and landscape gardening, is the incomparable "North Shore" of Massachusetts. Here is a vacation region that has eclipsed in popular interest even Newport and Bar Harbor. For a generation or more it has been the summer abiding place of Boston's bankers, merchants, and captains of industry, and latterly it has become the vacation ground of some of the most prominent members of the diplomatic corps at the national capital. In 1909, President William H. Taft, with intimate acquaintance with practically every corner of the Republic, decided that the proper place to set up the summer White House was somewhere on this regal North Shore of Massachusetts; and so it has come to pass that the summer capital of the United States is now in the pretty town of Beverly, whose natural attractions and splendid summer climate Oliver Wendell Holmes was one of the first of our great Americans to discover and appreciate.

The North Shore begins at sea-swept Nahant, home of the scholar in politics, Senator Henry Cabot Lodge, and continues eastward, on the northern side of Massachusetts bay, to rugged Cape Ann. Within its precincts are Swampscott, Clifton, Beach Bluff, Marblehead, Beverly, Manchester, Magnolia, Gloucester, Rockport, and Annisquam. In some of these rock-fronted, tree-embowered communities the red-tiled roofs of palace-residences costing a couple of million dollars show among the foliage, while around them extend great parks and beautiful Italian gardens. Everything that money can command and good taste suggest is to be found in this favored spot of New England. The oiled macadam roads over which the motor cars of the multi-millionaire summer residents roll are among the finest in the land. Horse shows, flower festivals, and open-air theatrical performances, are among the less conventional amusements enjoyed here. Typical of the

Bay State's maritime glory is the annual rendezvous and illumination of the New York and local yacht clubs at quaint Marblehead. It constitutes a vast and beautiful outdoor motion picture that no visitor to the vicinity can afford to miss.

At Gloucester, historic headquarters of the American fisheries and nursery of the national navy, artists by hundreds congregate each summer; for it is a place in whose backgrounds, atmosphere and "characters," they take a keen delight. Gloucester and Cape Ann in general may be reached by train, trolley, or steamboat. Among the many things this interesting section is famed for are its appetizing New England fish dinners. Vast is the stretch of sea-coast and innumerable the "shore" resorts that lie between the North Shore and the mystic vacation "beyond." The cool and delightful 16-mile strip of New Hampshire coast has crowded into it such attractive tourist centers as Hampton, Rye, New Castle, Portsmouth (scene of the historic Peace Conference of 1905), and the romantic Isles of Shoals, immortalized by Celia Thaxter and lying ten miles out in the Atlantic.

The Maine coast, without a peer in all the world, covers something like 2500 miles in its sinuosities, and embraces some of the most famous seashore resorts in the country. In the order of advance toward the east, there are Kittery, York, Ogunquit, Wells, Kennebunk, Old Orchard, Cape Elizabeth, Portland, Casco Bay, Rockland, Boothbay, Bath, Camden, Bar Harbor, and the incomparable Frenchman's bay region, until finally the invisible line that separates the United States from Canada is crossed, and the long procession of resorts in the Maritime Province begins.

Portland, like Boston, is an important distributing point of vacation travel, and has excellent through train connections with both the New England metropolis and New York. Old Orchard (the Atlantic City of Maine), Cape Elizabeth, Peak's island, Cushing's island, and the innumerable island resorts of beautiful Casco bay, are among its many nearby centers of attraction. Poland Spring, the famous summer-and-winter vacation resort and sanatorium, is within a short ride of the city, as is also Sebago lake, a delightful vacation and

fishing resort possessing among its attractions the celebrated Congo river and Bay of Naples. Farther afield, and on the edge of the wilderness, lie the regal Rangeley lakes, a thousand feet above the sea level, teeming with game fish, their shores lined with sumptuous camps, cosy cottages, and first-class hotels. Larger in area, and even more beautiful in scenery, is the more distant Moosehead lake, Maine's largest water sheet. Kineo, with its imposing mountain, is the social center of this popular tourist and fishing resort and possesses a big hotel well worthy of its reputation. Within a measurable distance majestic Mt. Katahdin, Maine's highest eminence, rears its head a mile above the ocean, and marks the center of the great fishing and hunting region of Maine. The vast and solemn wilderness that covers this part of the Pine Tree State is splashed with countless lakes and bisected with numberless rivers and streams, in which millions of trout, land-locked salmon, and other game fish, await the coming of the eager sportsman. It is also in these remote and balsam-laden covers that the city sportsmen find the fleet-footed deer, 20,000 or so of which fall to the hunters' rifles every season, along with smaller numbers of moose and bears.

Through the vast waterways formed by the Penobscot, Aroostook, Allagash, Big Fish, St. John and other great rivers of the Maine wilderness canoeists may paddle for hundreds of miles, fishing, hunting, or camping en route, wherever they desire. Sporting camps equipped with most of the conveniences and many of the luxuries of city hotels, are nowadays found everywhere throughout the fascinating wilderness country, some of them privately owned, and others controlled by companies or clubs. Even women can nowadays penetrate to the remotest recesses of the wilderness in safety and comfort. Expert licensed guides are everywhere available, and the transportation facilities are so greatly improved that the parlor car almost brings the sportsman within sighting distance of deer or moose. Even the automobile is now negotiating the heart of the ancient woods of Maine. Both Augusta and Bangor, attractive river cities of Maine, may be reached from Boston by direct steamboat; and there is scarcely any

part of the Maine coast itself, east of Portland, that is not accessible by local steamer. At Rockland breakwater there is a magnificent modern hotel that has become the nucleus of a seashore Poland Spring. In the glorious Frenchman's bay region the crescendo of New England's seacoast scenery is reached, the social climax coming at its world-famed Bar Harbor, on Mt. Desert island. This noted summer abiding place of multimillionaires grows more charming year by year. It is a community of magnificent estates, splendid roads, tonic air, and incomparable scenery. New England possesses no natural asset it prizes more highly. Like Marblehead and Newport, it is a favorite rendezvous for wealthy yachtsmen, and its annual golf tournaments, horse show, and other social events, are but a few of its social attractions. Surf bathing, yachting, salt-water fishing, driving and the long list of conventional athletic sports help to fill in the time of the vacationist along the shores of hundred-harbored Maine and bring brightness to the eye and bronze to the skin. The seacoast rivers offer splendid opportunities for canoeing, also, this being a notable diversion at Kennebunk. Clambakes and fish dinners on the beach are another favorite form of enjoyment. Roughly speaking, there is not a single mile of sea-coast between Boston and Eastport that is without some attraction for vacationists. The fine, hard, white beaches, washed by the crinkling surf of the Atlantic, are the special delight of visitors from points far inland.

Nowhere throughout the broad New England vacation field has there been a more remarkable growth than in the vicinity of the great lakes of New Hampshire. These today practically form a summer vacation department by themselves, and in some cases so rapid has been their development that it is no longer possible to purchase building lots around their shores except at almost prohibitive prices. Most remarkable of all has been the development of Lake Winnepesaukee, in southeastern New Hampshire, well named by the Indians "the smile of the Great Spirit." This largest of the Granite State's water sheets, and perhaps the loveliest of them all, is today the summer camping ground of thousands from every section

of the country. Its local resorts, like Weirs, Center Harbor, Wolfboro, and Alton bay, have had a remarkable growth in the last quarter of a century. New hotels have been built, old ones enlargd, Y. M. C. A., Appalachian Mountain club, and private camps have been established on many of its 350 islands; new steamboat lines have been added, and scores of wealthy people have erected substantial houses and cottages and become permanent summer residents. Most wonderful of all has been the increase in the number of motor craft on the lake. The Winnepesaukee fleet numbers hundreds of these today, including some of the fastest in the United States, and the motor-boat races are always an interesting feature of the annual lake carnival at Weirs. Sailing, canoeing, fishing for bass and trout, and motor-boating, form the leading pastimes at this beautiful hill-surrounded lake.

Lake Sunapee, in the more western part of the State, is another favorite resort. Its summer population has grown immensely in late years, and, like its larger neighbor, Winnepesaukee, it has a large permanent cottage colony as well as an immense floating hotel and boarding-house patronage. The proximity of the great Corbin game preserve lends an additional interest to Lake Sunapee. Another New Hampshire water sheet that may justly be regarded as a valuable New England "asset" is Dublin lake, lying within the shadow of Mt. Monadnock. This stately mountain — a favorite of the poet Whittier — is in turn the axis of a thriving and attractive vacation zone in southwestern New Hampshire generally referred to as "the Monadnock country." At Dublin are the beautiful summer homes of some of the country's most famous literary workers and professional men, a large number of whom spend their summer vacations in various parts of New England. It is likewise the summer headquarters of some of the Washington cabinet officials and ambassadors, who delight in its splendid ozone and its delightful scenery. Fitzwilliam, Peterboro, and East Jaffrey are other popular resorts in this vicinity.

Seductive as are its lakes, its seashore and its winding Merrimac and Connecticut valleys, New Hampshire's crowning

LOOKING SOUTH FROM SUMMIT OF MT. WASHINGTON. LAKE OF CLOUDS AND CRAWFORD TRAIL

glory is its highland country to the north — the White and Franconia mountains. Here are the breezy, verdure-clad New England alps, rising three, four, five, and even six, thousand feet above the level of the ocean a hundred miles distant, riven by valley, notch, and ravine, filled with profiles, echo lakes, ice caverns, flumes, lost rivers, and other natural wonders, and bathed in an atmosphere that instantly banishes hay fever, brain-fag, and many of the other summer-time ills of humanity.

The mountains are New England's most wonderful heritage, and the people of America are only just beginning to appreciate something of their real beauty and healthfulness. The volume of vacation travel toward them is constantly expanding, and the hotel season there is ever lengthening. The White mountains are at once the most exclusive and the most democratic of our outdoor possessions. For the millionaire, with his retinue of servants and his garage full of motor cars, there is beautiful Bretton Woods, 'neath the shadow of Mt. Washington; for the humbler business man, the clerk, the stenographer, there is busy Bethlehem, North Conway, and North Woodstock. Some of the biggest and best of the summer hotels of America are found in the White mountains, and there are fully a score of resorts, each with its own individuality, which are catering to the tourist public and increasing in size and prosperity every year. Golf is played there on some of the finest courses in the land. Driving, tennis, mountain-climbing, and motoring are the favorite enjoyments of hundreds of summer sojourners. Nowhere in this part of the country are there better country roads, for New Hampshire is a firm believer in the modern movement for better highways, and is at present expending several million dollars in the construction of three great trunk roads through the state, all of which converge on the Mountain Mecca. In addition to the vast numbers of summer vacation seekers who come hither by train, hundreds arrive by automobile, coming direct from points as far distant as Chicago, New York, and Washington. Some come through the charming Connecticut valley, others through the Merrimac valley, and yet others along the seashore to Portsmouth

or Portland, thence to the heart of the White hills, sometimes including Poland Spring and the Rangeley lake region en route. A very large percentage of the guests of some of the fashionable mountain hotels come in their own cars. The development of this medium of transportation and pleasure in the White mountain region is truly phenomenal, and has worked a distinct transformation in conditions there. One or two-day tours of the mountains by automobile, using a definite resort as a base, are exceedingly popular features. The social life at these resorts is of the most delightful character. With the modern telegraph, telephone, and transportation facilities available, business men nowadays find it possible to spend much longer vacations in the mountains than formerly. The growth of cottage life is a modern symptom, large cottage colonies having grown up in some of the centers, the owners of lessees taking their meals at the nearby hotel.

To describe the glory of the views and cloud effects in the mountains is a task that would better be left to a Starr King or Samuel Adams Drake. There is nothing to compare with them this side of Pike's Peak, in Colorado.

The mountains have a strong attraction for writers and artists in particular, and there is always a large representation of these there. The vacation season extends from about the last week in June till late in October, and to many the marvelously beautiful period of autumnal foliage is by far the best time to visit the region. Low-priced excursions from Boston and other large centers are usually run to the mountains by the Boston & Maine railroad around the Fourth of July and in the autumn. The high tide of vacation visitation occurs in August, when even the largest hotels are frequently obliged to refuse guests. Boston capital and hotel talent are largely represented in the White mountain resort business.

The present effort to make the White mountains an all-the-year-round resort, and to transform them in winter into a sort of American Engadine, is making promising headway, and at a number of the resorts some of the smaller hotels are being kept open throughout the season of snow. The Appalachian Mountain club of Boston, which has done so much good work

in the building of trails and shelters in the mountains and in the setting aside of forest preserves in other parts of New England, was the pioneer in this movement. After its famous snowshoe section had invaded the snowy fastnesses of the Presidential range in midwinter, it began to dawn upon outdoor lovers in the cities, and finally upon the doctors, that the tired business man or housekeeper could secure rest and healthful recreation just as easily a few miles up in New Hampshire as a few hundred miles to the south. The railroads have latterly taken hold of the winter vacation idea with spirit, and are giving it widespread and effective publicity.

To this hasty generalization of outdoor New England and its possibilities there should be added a word or two about Vermont. The beautiful Green Mountain State is a natural vacation section and sanatorium from one end to the other. With its high and picturesque Green mountains, its glorious Champlain, Memphremagog, Willoughby, and other lakes, its rich and attractive farming country, and its beautiful and well-watered valleys, Vermont has possibilities that could be capitalized into millions of dollars. Its climate is salubrious and its people are hospitable and progressive, and while they have somewhat lagged behind their New Hampshire neighbors in the matter of developing the summer tourist business, they are now beginning to realize their opportunities.

There are nearly 200,000 farms in New England, aggregating about 20,000,000 acres, and the owners of a considerable percentage of these are adding appreciably to their income by accommodating from one to a dozen "summer boarders." Their example is sure to be followed later by thousands of others. It is a profitable occupation when systematically pursued, and means a crop more certain than most of those that are raised from the soil. There is no good reason why the farmers should not have a very large share of the hundred millions or so of income from the New England summer resort industry that is already in sight.

Of the vast annual income already received, the transportation companies, hotel keepers, farmers, hotel help, guides, fishermen, builders, contractors, storekeepers, outfitters, and in-

numerable others, each gets a share. The transportation companies are spending thousands of dollars in newspaper and magazine advertising, special exhibits, and lectures at sportsmen's shows, and other forms of publicity, with a view to attracting additional throngs of rest-seekers from distant parts of the Union to the New England vacation playground. State and local boards of trade are helping the good work along, and an immense impetus has been given to the New England-ward summer movement through the hundreds of successful old-home-week celebrations in New Hampshire and Massachusetts, that have resulted from the happy idea promulgated by Governor Frank W. Rollins of the Granite State a decade or so ago.

The vacation season drift toward New England that was apparent a generation ago has today reached the proportions of a strong current. In the very near future it will be a tidal wave, taxing the facilities of the transportation lines to handle it. When the richest men of the West and South think it worth while to invest millions in the building of permanent summer palaces here; when costly hostelries like the Mount Washington, in the heart of the White mountains, can be filled to overflowing by guests who could afford to draw individual checks for their purchase; when automobile parties from twenty different states are speeding through Massachusetts and New Hampshire over the best highways in America, and when people of all classes are so delighted with New England as a summer resort that they want to come back to it in winter and revel in its deep snows and its blood-tingling winds — well, there must be something about the air and the scenery and the outdoor life of New England that is "different."

To those in less favored sections who are seeking an ideal place of rest, in the mountains, on a farm, or at seashore or wilderness retreat; who wish to find a summer camp for son or daughter, or who yearn to visit the most interesting and inspiring shrines of American history, we extend a cordial invitation to come to New England. Their heart's desire will be satisfied here, if anywhere on the continent.

Education in New England

One of the largest assets of the modern civilized state or nation is to be found in its conceptions, ideals and practices of public education. New England, from the early days of settlement, led the nation in its patronage of the schoolmaster, its devotion to schools, its educational legislation, and its study of educational problems. Because they have so often been doing pioneering work, and because of their ambitious ideals, the builders and critics of New England's school systems have often seemed to disparage present accomplishments, whereas in reality they were mainly striving to make clear the ways to better things.

All social accomplishments involve composition of forces operating in different and sometimes opposite directions. The evolution of education in New England reveals this in several ways — on the one hand has been the endeavor to preserve full local control and democratic administration, on the other to secure uniformity and efficiency by legislation and centralized organizations. Individual and volunteer effort, seen especially in academy and college, has been sometimes reinforced and sometimes modified, and even opposed, by public action. The controlling aims of education have been religious and liberal, yet these have had to be increasingly supplemented and perhaps modified, owing to the changed social conditions, by considerations of vocational necessity. The family has been the social unit and the parent has been jealous of the rights and prerogatives of his position; yet progressively the state has insisted on securing to all children the rights of a protected childhood in the fullest sense of that word. Nowhere have the conflicts of divergent policies and varied principles produced a more intense interest in education than in New England; and while at times progress has been neutralized by the conflicts engendered and "dead points" have been reached,

nevertheless there is seldom apathy, and there has always been present potentiality of new and far-reaching developments.

The public-school systems of New England are still strong in local administration, as contrasted with those found in other sections of the country, and especially with those of Europe. This ensures democracy of control and local interest, though it may paralyze at times the enforcement of legislation and the widespread application of higher standards. The father and the minister, the original educational authorities, have grudgingly recognized and given scope and responsibility to the trained teacher, the expert supervisor, the agent of the state, and the legislator. Increasingly the cities recognize organization and expert instruction; and slowly state authorities are also gaining in their influence over the rural and village systems. In proportion as the amounts of money invested in education and the sense of public responsibility increase, so will it become necessary to develop state machinery in coöperation with local effort for the administration of the public schools. New England democracy refuses to yield itself to any system of autocratic or unduly centralized administration; nevertheless, it is slowly developing a state control and endeavoring to find what state functions may be essential in the administration which shall serve democracy and at the same time promote efficiency.

Within recent years the opportunities for coöperation given to state authorities have markedly increased throughout New England, and especially in Massachusetts, Connecticut, Rhode Island and Maine. Massachusetts recently reorganized its State Board of Education, adding to its control of the normal schools a variety of functions in reference to industrial education. There are signs that in the other states the movement for industrial education will receive strong support from the state authorities, owing to the advantageous position in which they stand in conducting investigations, administering funds, and setting standards.

The various types of education throughout New England date their origin to individual volunteer and philanthropic effort. In the field of elementary education these agencies have

long been supplanted, except in the case of parochial education, by the public supported schools. For three-quarters of a century the academies, supported by the endowments of the wealthy, the collections of the churches and the fees of parents, not only prepared for college but were for large numbers the real institutions of higher learning. Many of the academies have been forced to give way to the publicly supported high schools in which are now found in constant attendance fifteen out of every thousand of the population of New England. In the region of higher education, private and philanthropic effort is still paramount. There are in each state colleges under public support, devoted mainly to agricultural and engineering education. Apart from these, the large number of liberal arts colleges experience little competition from institutions supported by taxation. Nowhere is the spirit of private enterprise in education more admirably exemplified; and though there are advocates of public institutions of higher learning supported by taxation, and without fees, nevertheless all must admire the New England colleges which preserve the traditions of private effort.

Education, as commonly understood, has aimed mainly at the kind of learning called liberal. This has been true even when the chief aims of certain colleges were to prepare ministers and magistrates. The New England common school and academy, the modern high school and the college, have seldom been controlled by vocational aims. During the generations when life was simple in its economic aspects preparation for vocation was essentially a domestic and private function. School and college developed strong traditions of liberal learning, and to a certain extent arrayed themselves against the limitations of the practical life. In the last half century however the enormous development of the industrial life and the declining effectiveness of the old home occupations and the shop and farm training which fitted for vocation have brought into increasing relief the necessity of supplementing at public expense liberal education by vocational. To a certain extent the two forms of training are competitive, even though in many of their aspects they are complementary. The

NEWTON, MASS., TECHNOLOGY HIGH SCHOOL

supporters of liberal learning have at times felt that the rise of engineering and agricultural colleges, commercial high schools, industrial schools and institutions of training for the household arts have threatened the foundations of culture. Perhaps the schoolmaster has delayed the development of a genuine vocational education; perhaps the public has not been convinced that such education is generally possible under school conditions; nevertheless the twentieth century promises in New England an evolution of industrial and agricultural education such as the country has not yet known. The conditions are ripe for it and the economic success of this part of the United States dependent upon it. Few of the students of vocational education believe that it will react on liberal learning in any other than helpful ways. Rather it would promote interest in and opportunities for a more effective liberal education than has yet been seen.

Only a fraction of the people of any American community refuses to avail itself of educational opportunities, and this percentage has been especially small in New England. It is important however that this minority be compelled to regard the educational rights of children in order that the state may not be harmed. Movements for compulsory education have had their chief centers in the United States in such New England states as Massachusetts and Connecticut. The legislation of Massachusetts now safeguards the educational rights of children in a variety of ways. No child may be absent from school between the ages of seven and fourteen without a satisfactory reason; no child from fourteen to sixteen may be employed during school time unless he has attained to a minimum standard of ability to read and write and has obtained the approval of a physician as to his physical ability to do the work on which he is to enter. Illiterate persons are compelled to attend evening schools until eighteen. Private and parochial schools are under public supervision, so far as the standards and efficient performance of their work is concerned. In other respects Massachusetts safeguards and assures to each child a protected childhood. A never-ending conflict is waged between the State and the public on the one

hand and individuals on the other, in order to secure these ends; but out of the conflict has come on the one hand conservatism and on the other a sensitive public conscience and the determination to give children their due.

Education may signify today either or both of two things: It may reach down and persistently expend its efforts on the multitude, or it may strive to create splendid opportunities for those endowed with a capacity for leadership. The public-school system with its institutions for the training of teachers most nearly affects the majority of the people. In New England over $30,000,000 is annually invested in the education of children or a daily average of over 20 cents for each pupil in school attendance. Of all the children from five to eighteen years of age, 70 percent are enrolled in these public schools, as contrasted with 69 percent for the United States in general. Throughout the United States an average of 155 days school session is maintained during the year, but in New England it reaches 171; and while the national average of days of attendance for each pupil enrolled is 110, that for New England is 130. For each 100 pupils enrolled the average attendance is 76 in New England and 71 in the United States. New England spends on schools annually 28 cents for each $100 of valuation, as against the country's average of 25.5 percent. Years ago it was shown that the productive capacity of the unit in population in Massachusetts was more than double that for the nation at large; and Dr. Harris, then Commissioner of Education, attributed this mostly to the better distribution and the better quality of education in that State. In 1908–09, 60 percent of all teachers in Massachusetts were graduates of normal schools or colleges. In the ten normal schools were found a total of 1955 students with 626 graduates, probably sufficient to supply over two-thirds of the new teachers needed. While Massachusetts has not yet wholly succeeded in having a professionally trained teaching force, and while the other New England states have as yet been still less successful, nevertheless, in comparison with the rest of the country, substantial advances have been made, and the immediate future, in view of contemporary movements, promises well.

Not merely does New England concern itself with the problems of the support of free schools: In recent years the entire program of public education has widened enormously, in response to a well-defined demand of modern social economy. In proportion as the number of school years and the length of each which is made available for attendance on schools by children increases, so do the opportunities of these schools enlarge for educational usefulness. So far as the rank and file of children is concerned, the older schools aimed at the simple arts of reading, writing and number, supplemented by the moral training which goes with firm discipline and religious and ethical instruction. To this simple program has been added in the last quarter of a century a wide range of material contributing to the cultural development of the child. In Massachusetts drawing was made obligatory in the third quarter of the nineteenth century; manual training has since been added, especially in city systems; the expansion of reading into the generous program of literature and library opportunities of the modern day is well known. No school now fails to give some guidance into the domains of science, history, civics and art. The program of the larger moral training, including humane treatment of animals and the development of thrift, is being steadily pushed forward. Within recent years teachers everywhere are striving to utilize the economic environment as a store of materials for education with a view to developing insight and appreciation of the world of practical life. Drawing, manual training, gardening, household arts, are the starting points in this development which promises to enrich also the teaching of reading, number, science and history. As a step in rendering education more efficient it has become increasingly a matter of public policy to supply free text-books and other implements of education. To a considerable extent in the country, and to a very marked extent in cities, school buildings of a modern type are replacing antiquated housing which was once deemed adequate for children.

The oversight of and care for the health of children has also become a part of the program of the common school. Medical

inspection, originally confined to a few cities, has now become compulsory throughout every town in Massachusetts. The movement for playgrounds has assumed such proportions that public authorization is given to towns to expend money for the purpose of purchasing and equipping playgrounds. Voluntary agencies are supplementing the work of the public schools in providing school nurses, in disseminating knowledge regarding tuberculosis, and in demanding a more adequate program of instruction in hygiene.

New England resembles Scotland and a few other aspiring states in its provision of opportunities for the training of the leader. The three types of secondary school found in New England, and which represent the three stages in the evolution of secondary education, are largely devoted to this end. The earliest schools, still represented by the Boston Public Latin school, which was established in 1635, and by Phillips Andover and Phillips Exeter, were largely classical in their character and devoted themselves to college preparatory work. The academies came into existence later because of popular demands for a wider range of studies than the Latin or grammar schools afforded. Some of these still exist on private foundations or in working arrangements with school committees. They form intellectual and social centers and have had a profound and wholesome influence on many New England communities.

The really significant contemporary factor in secondary instruction is however the public high school. Supported largely by direct local taxation, the best evidence of its success in meeting the demands upon it is found in the rapid increase of such high schools, in enrollment, and in the generous provisions made for buildings, equipment and current expenses. Massachusetts may be taken as a fair example of this development. In 1878–89, there were in that State 216 high schools, with 596 teachers and 19,311 pupils. Ten years later there were 236 schools and an enrollment of 24,139. In 1899 with a total of 261 schools the attendance had risen to 40,592, a gain of 100 percent in 20 years. The last decade has shown an addition of nine schools and an increase

to a total of 53,958 in the number of pupils. In 1908 there were reported in New England 90,332 pupils in recognized high schools. For each one thousand of population in the United States 9.8 are in constant attendance on public high schools, whereas in New England the proportion is 15 per thousand. Recently a significant unrest has been experienced in professional circles connected with public secondary education. It has been felt that an increase in practical studies was demanded by the public, and that forms of liberal training suitable to a small minority of the population should be supplemented by those adapted to the larger number. Within the last decade hundreds of these high schools have developed commercial courses. Some have equipped themselves for manual training, and a few have endeavored to integrate agricultural work with other regular courses.

It is now an accepted principle, gained after much effort, that the opportunities for a free secondary education must be available for every boy and girl. Cities and towns above a certain valuation in Massachusetts must provide free high schools; the smaller towns are aided by state grants in maintaining such schools, or when the resources and population of the town do not warrant the boys and girls may go to a nearby high school, tuition to be paid by the home town with reimbursement in whole or in part by the state. In some cases conveyance is also provided.

Not the least striking evidence of the interest of the public is to be found in the generous appropriations for buildings and equipment. An entirely new type of high school architecture has been developed in the last fifteen years, which combines good proportion and attractive appearance with comfort, convenience, and favorable conditions for the conduct of the school. One New England city, by no means rich and with less than 90,000 population, has within a period of ten years erected two high school buildings at a cost, including land and equipment, of nearly a million dollars. The total investment in New England for high school purposes amounts to nearly $25,000,000, and the annual cost of maintenance is almost $2,000,000.

GIRLS MAKE THEIR OWN GRADUATION GOWNS AT NORTHAMPTON SCHOOL OF INDUSTRIES

Reference has been made to certain practical tendencies in the studies. There is also a marked change in method. The older systems of rote-learning and memorization are being displaced by a more vital and direct teaching which seeks to awaken genuine interest and to bring the pupils into contact with the realities of life. Language is mastered as a tool to be used; history is made alive with meaning; literature is appreciated and enjoyed, and the habit of reading becomes fixed. Science deals with the applications of the forces of nature in the service of man. A course of physics thus taught enables the boy or girl to understand the kitchen stove, the operation of a gas meter, or principles shown in the city water system. A higher order of intelligence is thus brought to bear on the important facts of life, and on public utilities. These public high schools are also giving increased attention to the physical well-being of youth. Athletic exercises and games for both boys and girls are being regulated and directed by competent instructors so as to give the largest returns in permanent bodily vigor. Direct teaching is given on the care of the health and on respect for the functions of the body. The team sports are made the means of moral training and self-control, honesty and goodfellowship.

The public high school, unlike its English counterpart, and to some extent unlike the academy, is everywhere a day school. It thus encounters difficulties in becoming a center of social activities, but nevertheless an increasing disposition is found to socialize the body of secondary school pupils and teachers. The more extended use of the school building, the promotion of coöperative effort of a wholesome kind, and the direct training through school government and civic activities of the boys and girls in the duties of citizenship are already to an extent realized, and the high school membership becomes a community in miniature.

New England's record in the field of higher education through college and university is easy to read, and shows clearly the faith of her people in culture and intelligence as prime factors in the success and prosperity of her commonwealths. This faith has been attested by the readiness of both

individuals and states to give generously in money and service to these institutions. Hardly were the first settlers on these shores established when they began to seek to provide the means of education for their leaders in state, church and school. Harvard college was founded in 1636 — by vote of the General Court of the Colony of Massachusetts bay, and a grant of £400. Yale college was founded in 1701. At the opening of the nineteenth century every New England state was provided with institutions of collegiate rank, as the following summary shows:

Connecticut, Yale, founded 1701.
Maine, Bowdoin, founded 1802.
Massachusetts, Harvard, founded 1636.
" Williams, founded 1793.
New Hampshire, Dartmouth, founded 1769.
Rhode Island, Brown, founded 1764.
Vermont, Middlebury, founded 1800.
" University of Vermont, founded 1800.

The motives behind these popular and public demands for the college were various. It was desired to give the minister, the lawyer and the doctor, proper training for professional work. Teachers and professors must be well equipped or learning and instruction would suffer, and general intelligence decline. As civilization has grown more complex, the demands on higher instruction have multiplied, and New England with the advantage of her early start has been able to build on this foundation a remarkable group of colleges and universities, equipped to serve the people in many ways. In fact, one of the most significant features of education in New England today is the rapidity and effectiveness with which the higher institutions are meeting in a thorough way the needs of the times. Women for whom but a scant provision was made 250 years ago are now given opportunities equal to those of men, a condition won within the last third of a century. Though a number of colleges are coeducational, this form of institution has never been as firmly established in New England as in the West. The education offered women ranges from the time-honored literary or classical studies to

courses whereby a training is given in domestic science, library administration, and in other callings which the conditions of modern life are opening to women.

So the colleges for men are giving youth who are to enter on financial, commercial, or industrial courses, the broad outlook and high ideals of the educated man, and also direct instruction in the elements of the proposed calling. A number of schools of technology and departments of applied science in universities are sending out yearly graduates of the highest technical skill. Admirable provisions are also made for the teaching of scientific agriculture and thus increasing the returns from the farms and market gardens of New England.

The money invested in colleges and universities is one evidence of the place they hold in the confidence of the people. There are in all thirty-three institutions of collegiate rank in the six New England states, and of these five are for women exclusively. There are represented in the grounds and buildings of these colleges and universities nearly $50,000,000. Endowments amount to $64,000,000. It is probably no exaggeration to say that New England today has $120,000,000 of property applied to uses of higher education. While some of this has come from grants by state legislatures and from the national government, it is in the main an accumulation of gifts from individuals, often made at the expense of personal comfort and at considerable self sacrifice, out of devotion to the cause of learning and for the sake of an intelligent citizenship. The few losses sustained from endowed funds speaks well for the ability and fidelity of the boards of trustees of New England colleges.

Another estimate of the advantages New England has in college provisions may be based on the number of institutions found within a given area. Boston is one center especially noteworthy for a concentration of such agencies — a circle with a radius of twenty miles from Beacon Hill as a center includes eight colleges and universities of the highest grade with an enrollment of over 10,000 students. Another area is that of the Connecticut valley, which traverses Connecticut and Massachusetts and divides New Hampshire from Vermont. Within

this river basin there are twelve colleges with a total attendance of 8,400.

In connection with these figures for enrollment of students one must keep in mind that the influence of the colleges on New England and of New England through the colleges on the United States and on the world at large, is determined in some measure by the great number of young men and women who come from outside her borders that they may attend these institutions of established standing and prestige, and on the wide geographical distribution of the graduates. The catalogue of one of the smaller colleges for men shows that the students come from thirty-one states and four foreign countries. A university with an attendance of 1587 has representatives of thirty-three states or territories and of fourteen foreign countries. A college for women, of comparatively recent establishment, draws the student body from twenty-seven states and from Porto Rico and Canada. There is an even wider distribution of graduates. A class now numbering 112 living members is scattered in twenty-nine states and eight foreign countries.

New England is thus ministering to the nation and the world through her institutions of learning, as she has done through her men of affairs in business, finance and commerce. The young men and women who have come from afar to her colleges bring with them a broadening and stimulating influence that makes impossible provincial ideas and counteracts the conservatism that leads to stagnation. A tangible evidence of continued interest of alumni and other friends is found in the constant bestowal of gifts which flow into colleges from different sources, and which make amends in some measure for the absence of the grants of public funds enjoyed by state universities. In many other ways the colleges and higher institutions of learning give New England her best means for influence and for publicity in the best sense of that word.

It is also encouraging to see that the leaders of education in New England are taking measures to meet the demands of the great body of young men and women who, through lack of

means, are unable to avail themselves of the great advantages of a college course in residence. Earnest efforts are being made on the one hand through scholarship funds and student aid to bring the expense within the reach of the many so that it shall not be said that colleges are for the rich alone. Again a promising movement for university extension has recently been inaugurated, whereby the colleges in and about Boston are coöperating in furnishing courses at minimum expense to the public. A special venture in the same direction is found in summer courses, and also in the system of traveling exhibits and lectures conducted by agricultural colleges. Such an awakening to the demands of democracy on its institutions of learning is a guarantee that New England is bent on maintaining its prestige in education, and is also learning to make its colleges more effective instruments in promoting its advancement.

The movement for industrial or vocational education has met with greater and more extensive development in New England than in any other part of the country. A variety of causes, social and economic, have promoted this interest. Philanthropists have long ago developed industrial training for delinquents and other dependents. The need of earlier and greater efficiency among wage-earners as a cause of self-reliance and self-respect has long been felt.

On the economic side, a growing appreciation of the place of scientific training as a means of promoting the agricultural interests of Massachusetts has been recognized. The specialization of manufacturing has diminished the value of apprenticeship. The competition of European countries and of other states has shown New England that to maintain manufacturing supremacy it must still further enhance the skill and intelligence of its laborers. Leadership in industry has too often been imported. Under manufacturing conditions and specialized labor, a very large number of children leaving the schools at about fourteen years of age are not able to enter into occupations which, in themselves, provide education. As a result, they do not become men and women of wide industrial capacity. The public-school system, however good, and meeting the

A WORKROOM IN THE WORCESTER TRADE SCHOOL

ends of general education, has been able to react only slightly on vocational skill and capacity.

As a result, in comparatively modern times, industrial education has been superadded as a source of public instruction in Massachusetts and other New England states. Under the stimulus of the Morril act agricultural colleges were established between 1860 and 1870 in all these states, and in 1873, Massachusetts provided the funds for a Normal Art School in Boston. The Massachusetts Institute of Technology, founded in 1862, and the Worcester Polytechnic Institute founded in 1865, have been constant stimuli to the higher technical education of New England. Only within the last decade however do we find a well-defined demand for widespread public industrial education, under support of taxation. The so-called Douglass Commission in Massachusetts, in 1908, paved the way, by certain researches indicating the demands of industry and the large numbers of young people needing such education, and in fact absolutely dependent upon it for sustained advancement along productive lines. This was followed by the Commission on Industrial Education which proceeded to establish schools, and to develop a widespread interest in the subject.

In 1909 Connecticut provided for free public trades schools in at least two cities of the State, at an expense of $50,000 per year. Other states, like Maine, Vermont and Rhode Island, have conducted investigations and provided for drawing and evening school work.

In Massachusetts however the most substantial practical advances have been made. Private effort in certain directions has developed schools to reinforce the apprenticeship system. This is notably the case in the works of the General Electric company of Lynn, and the Ludlow Associates, at Ludlow, Mass. In all important centers the Y. M. C. A. carries on evening classes for workers in the trades. In 1908 twenty-nine classes in Boston had 1,163 pupils, besides 2,000 students and 100 teachers in the evening Institute. It is not possible to estimate the interest in correspondence work but it is known that many thousands of skilled workers avail themselves of this form of instruction.

Trades or technical schools, endowed by private philanthropy, do a large amount of work. The Massachusetts Charitable Mechanics' Association, the North End Union, the Wells Memorial Institute, the Woman's Educational and Industrial Union, the new Wentworth School and Franklin Union typify these activities in the city of Boston alone. A combination of public and private enterprise represents in very recent years an important development in vocational education. This is the so-called part-time work, secured by coöperation between the shop on the one hand and a public school on the other. The most noted examples are found in Fitchburg and Beverly, in Massachusetts, and Providence in Rhode Island. Recognizing that a combination of practical and theoretical work is essential to the higher vocational efficiency, business men have offered their shops for the former, and have provided the time and opportunities to their young workers for obtaining technical or theoretical instruction in the public schools. The plan, still in its experimental stage, promises well, and already in New Haven, Hartford, Fitchburg, Worcester, Boston and Lawrence, the example of the above cities is being followed. Other types of part-time vocational education are found, notably in evening classes. In recent years the tendency has been to provide in these classes practical instruction to aid those already at work in the industries. The technical high schools of Cambridge, Springfield and other cities, have directed themselves to this movement in such a way as to make their work of most distinct practical advantage to young workers. In Massachusetts the independent industrial schools, of which eleven were in existence last year, carried on practical courses for operatives.

In some respects the most important industrial training is found in schools which can take the entire time of the boy or girl for one or more years for this purpose. In the technical high schools of New Haven, Springfield, Newton, Boston and Cambridge, a large number of students acquire, in connection with their liberal education, a body of experience in the wood and metal working, and in applied science, mathematics and art. While not strictly vocational, these schools have done

much to enlist a favorable public opinion. The independent industrial schools, in some cases for the mechanics arts and in some cases for agriculture, founded by the Massachusetts Commission on Industrial Education, are essentially vocational schools, taking boys and girls over 14 years of age, and giving them, by technical instruction and participation in productive work, the actual foundations for vocational efficiency. In 1909–10, seven of these schools were in full operation — the Worcester School of Trades, the Smith School of Agriculture and Trades at Northampton, the New Bedford Industrial School, the Boston Trade School for Girls, the Beverly Independent Industrial School, the Lawrence Industrial School, and the Montague School of Agriculture. With probably favorable legislation many other schools of this type are to be established in the near future.

In Rhode Island and Maine industrial courses have recently been introduced into academies. In Connecticut a trades school has been established at Bridgeport. Massachusetts has supported for a number of years, at large expense, textile schools at Lowell, New Bedford and Fall River, which are high-grade technical schools so far as day students are concerned, requiring high school graduates for admission. As evening schools they carry on successful courses for operatives who work during the day.

Religion in New England

Joseph Cook, in one of his lectures delivered in Boston in 1878, said: "The two most typical things in the territory east of the Hudson are the college bell and the factory chimney. The first New England was a church; the second New England is to be a factory." This was his pictorial way of saying that the average New Englander of his day was less concerned with religion, especially on its theological and dogmatic sides, than was the case with the New Englander of the seventeenth and eighteenth centuries, and that the section he was describing had passed from a theocracy to one of an industrial democracy more secular in its tone. Nor has the situation changed during the thirty-odd years that since have passed, save to accentuate the change which he then recorded. Education and industry, school and factory, unquestionably have loomed larger to recent generations of New Englanders than they did to the pioneers and to their immediate descendants who peopled not only New England but regions beyond, carrying school, church and democratic government with them wherever they went in the region between the Hudson and the Rocky mountains.

But it is easy to exaggerate the changed point of view. If New England today has few such outstanding figures in her pulpits as she once had in men like Jonathan Edwards, Lyman Beecher, Horace Bushnell, "Father" Taylor, William Ellery Channing, Theodore Parker and Phillips Brooks, neither has the pulpit of the country at large any such outstanding figures as it had formerly. If New England's school of theology no longer are conspicuous for leaders in dogmatic polemics — men like Taylor of Yale, Park of Andover and Norton and Hedge of Harvard — neither are the divinity schools of Scotland and England nor the universities of Germany any more conspicuous, relatively speaking. It is not an era when

the ablest and most constructive minds of the church are as busy with dogmatics as they are with problems of biblical scholarship, the psychology of religion, religious pedagogy and social applications of Christian ethics; and in these fields scholars like Peabody, Toy and Moore of Harvard, Bacon of Yale, G. Stanley Hall of Clark University, Tucker, recently of Dartmouth, Hadley of Yale, Hyde of Bowdoin, Bowne of Boston University and Robert A. Woods of the South End House have been conspicuous, and are still influential in shaping the thought of the nation. Analysis of a list of leaders in these fields of research and authorship, who live in other sections of the country, would show a surprisingly large number of them either of New England stock, or as having received their education in New England, or as being affiliated with sects that always have had their chief strength in New England.

Moreover, if the point of view be shifted from the condition of affairs in the churches which date back to the earliest beginnings of New England, and if attention is centered on the Roman Catholic church which now numbers 2,100,000 adherents in New England, the fact to be noted is, that until a comparatively recent date, this church's chief gains by immigration have been from sources — Ireland and Canada (French) — where there is conspicuous adherence to the deposit of the faith, and unquestioning loyalty of the laity to the head of the church and to the bishops and priests. So that unlike Germany, Italy and France, Roman Catholicism in New England has been exempt from the distractions of contentions within the fold, and has been free to develop along spiritual and practical lines, unchallenged by any exercise of authority by the State or any hostile assault of "secularism." Consequently this church in New England can present to the nation at large a record of numerical increase and development of its educational, philanthropic and practical religious forces that makes it certain that religion is a very vital factor in the New England of today.

Likewise, if the more recent invasion of New England by settlers from Scotland and the Canadian provinces be taken

into account, it will be seen to have brought into the region inhabitants who have back of them deep-rooted religious habits and a conservative point of view in matters of theology; hence the recent marked growth of Presbyterianism in a section where it never has been strong until within the present generation.

With the incoming of Italian and Portuguese Roman Catholics, of adherents of the Orthodox Greek church, and of large numbers of Orthodox Jews from Russia, new factors have appeared, the precise form of whose influence it is difficult to predict; but they are factors that add to the interest and complexity of a racial and religious situation which makes the future of New England on its religious side fascinating to dwell upon and speculate about; a situation that for its solution will call for ecclesiastical statesmanship of a higher order than that demanded when the Protestantism of the region was dominated by the Puritan ideals of the original settlers, or when the Roman Catholicism of the region was almost exclusively of Celtic origin. Never having had many German settlers, either Roman Catholic, Lutheran or Reformed, New England lacks this element of a problem of racial and religious adjustment which is found in sections of the country west of the Hudson and in New York City.

The descendant of the original Pilgrim and Puritan settlers of New England, or of the generation of immigrants who followed them, of whatever race or creed, when he arrives at years of self-consciousness and analysis of his New England environment, finds that the New England of today has traditions of duty for its citizens, and standards of personal and civic conduct which are rooted in the early theocratic government of the Massachusetts and Connecticut colonies. Church and State long since parted company, but the ideal of a union of religious faith with civic duty and rights, as in some way inseparably bound together, still abides. The clergyman still counts as a man of influence, as a molder of public opinion, and as a citizen conspicuously qualified to shape the practical policy of administration of schools, libraries, charities and local government. Altered social structure, changed conditions of living, new forms of

abode and of community life, the rise of new professions and the increased importance of older ones, may have rendered impossible some of that pastoral supervision of flock and community and that direct moral censorship of the laity, which was characteristic of the early ministers and priests. But church and clergy are still factors in New England life to a degree that is significant and important; and they supply a conserving and ethical force which is lacking in states more recently added to the Union, whose founders were more purely commercial and utilitarian in their motives for settlement; states where the educational systems, from the start, have been chiefly secular in aim.

Moreover, the religion of New England now bears, and will bear, whatever changes may come, the impress of that emphasis on ethics which has characterized it from the first. The Pilgrim or Puritan was a theologian, but also a setter-up of the Kingdom of God on earth. Roger Williams revolted against emphasis on creed above deed. Jonathan Edwards left his church at Northampton because he was not supported in an effort to discipline its sinners, and as a reformer of the Puritan polity he stood for a regenerate church membership. Jonathan Mayhew preached the liberty from tyranny, that Sam Adams organized against in the town meetings. Channing and his contemporaries among Unitarians, and Beecher and Bushnell among Orthodox Congregationalists, labored for a theology that was in harmony with the highest ethical ideals of men. The anti-slavery propaganda of Garrison and Phillips, Parker and Emerson, ultimately forced New England churches to hatred of slavery and support of a war that put an end to it; and out of all the clashings of Puritans and Quakers, Calvinists and Arminians, Trinitarians and Unitarians, Protestants and Roman Catholics, and Conservatives and Radicals in religion and politics, which New England has seen, has emerged the ideal of free thought, free speech, and toleration of many points of view; an attitude which has become ingrained and chronic, and that today makes New England a singularly attractive place of residence for persons who elsewhere have suffered from tyranny or cramping envi-

ronment. The result is a measure of present amity between former foes and historically hostile faiths which is unprecedented, while at the same time there is a candor in expressing diverse points of view without diminishing personal and sectarian goodwill which is surest proof of the high measure of civilization to which the section has attained.

That this aspect of New England life today has its economic as well as its intellectual and moral value is beyond dispute. News of it goes abroad and turns New England-ward European emigrants who are seeking liberty of soul as well as physical maintenance and privileges of citizenship. It draws back to New England her own sons and daughters, or their children, who have experienced in other sections of the country limitations of thought and speech and narrowness of sympathy for new ideas and new ideals. It supplies New England schools, colleges and universities with students who wish to breath an ample, tonic air, and who, breathing it, return as emancipators to regions where a less free ecclesiastical, theological and intellectual life obtains. It makes New England a Mecca toward which clergy of other sections steadily turn, seeking for pastorates or for opportunities to educate their children.

Religion in New England has another characteristic, and has had it from the first. It is a missionary-breeding and gift-bestowing section; conspicuously so in both the Protestant and the Roman Catholic folds, none of the older settled sections of the country equaling it in gifts for schools and colleges, churches and hospitals, that dot the sparsely settled regions of the home-land or the crowded centers of the non-Christian populations of distant continents. The laity are trained to give as becometh stewards, and they have done it so long that in many families it has become a tradition and a habit as natural as casting up a family budget of expense or paying taxes to the town collector. Consequently New England is the favorite resort of beggars for good causes the world over, and to it steadily wend their way founders of schools and colleges, promoters of philanthropic institutions, and administrators of missionary societies. In this practical,

Good Samaritan form of religion New England has not lost in the slightest degree its long conceded primacy.

New England's religion never has been pietistic or mystical in its type, nor emotional, but chiefly rational, ethical and practical; and it still is, but with marked changes of late in favor of ritualism and symbolism, due in part to the influx of adherents of the Roman Catholic and Greek churches, in part to the reaction of the Puritan elements of the population against excessive emphasis on preaching and on doctrine, and in part to the effect of an education, now to be had far more easily and generally than formerly, which places emphasis on the esthetic and imaginative aspects of life. The effect of this is being registered not only in an altered order and form of service of worship in churches traditionally identified with Puritanism, but also in the church architecture of the period, and in the ceremonial of academic functions in institutions historically identified with the Puritan and Pilgrim pioneers.

New England is still fertile in ideas and ideals which show that she is to be reckoned with in shaping national religious trends. Though dead, teachers of philosophy like James of Harvard, Bowne of Boston University and Garman of Amherst, are still unspent forces, living in the many pupils who so recently have sat at their feet; while teachers like Royce and Palmer of Harvard and Stanley Hall of Clark University have far-reaching effect in shaping the thinking of lesser men. Nor would a survey of the field be complete which failed to notice the influence of Charles William Eliot of Harvard upon religion and religious practices during his forty years' term as president. He made the Harvard Divinity School, previously Unitarian, an undenominational school in 1880, thus considerably antedating similar action at Union Seminary in New York City and at the University of Chicago. He fostered the plan of establishing a Summer School of Theology at Harvard, which was first held in 1899, and in 1909, speaking at this school, he outlined "The Religion of the Future" in an address which has been more widely commented upon than any other utterance by a layman for many years past.

TYPICAL NEW ENGLAND VILLAGE STREET

New England at the present time is witnessing a drawing together of the Baptist and Free Baptist denominations, and a decided waning of the ancient feud between Trinitarian and Unitarian Congregationalists. In the first case, it is due to the waning of emphasis today on issues which once seemed important; and, in the second case, it is due to a sense of need of coöperation in order to preserve a type of independent polity in church government, a point of view as to the authority of the individual in matters of belief, and a simplicity in form of worship which the adherents of these churches believe are not fostered by the churches with an episcopal polity and more elaborate ritual, churches that are now strongly entrenched and that are gaining in adherents and in power of various kinds.

New England has to its credit during recent years the birth of several movements in the religious world which have come to have more than sectional, or even national, influence or fame. It was in Portland, Maine, in 1881, that Rev. Francis E. Clark founded the first society for the youth of his own Congregational Church, which has since flowered out into the Young Peoples' Society of Christian Endeavor, with branches in many of the Protestant churches of the United States, Canada, Great Britain, Australia, on the Continent of Europe, and in lands wherever American Protestant missionaries have gone. It now has 73,465 societies throughout the world, with 3,673,250 members. In the United States the societies number 48,780, and the members 2,439,000.

Judged by the originality of its contribution to the religious life of the country and the world and the amount of popular interest and discussion which it has aroused, there is no religious movement in the recent history of New England comparable with that which Mrs. Mary Baker Eddy leads. She established the Metaphysical college in Boston in 1881, having taught her system to a number of students previous to that date. She chartered the first Christian Science Church in 1879, and became its first pastor. In 1906 the membership of the Christian Science denomination, according to the report on Religious Bodies by the Bureau of the United

States Census, was 85,717. At that date the membership of the mother church in Boston was 40,011. There are now over 500,000 copies of the Christian Science text-book in circulation. Reports show that during the past year an average of one new church has been organized every three and one-half days, and the directory of the denomination shows 721 regularly organized churches, and 506 societies, holding public services, but not chartered churches. Christian Science literature is now sent to all the continents, and to over forty of the nations of the world, and there are churches in Africa, Asia, Europe, Australia and Latin as well as North America.

It was in Boston that, in 1881, the New England Divorce Reform League was formed, which led later to the formation of national society with headquarters in New England, which in 1897 took the more exact title of the National League for the Protection of the Family, under which name, but chiefly with New England support and throughout its entire history under the direction of Rev. S. W. Dike of Auburndale, Mass., it has done its educational work in a quiet but effective way, materially aiding in shaping legislation in this country, and contributing to discussion and settlement of a problem that is acute throughout the civilized world.

It was in Boston, in 1906, that Rev. Elwood Worcester, rector of Emmanuel Church, began to expound the relation of psychotherapy to religion, and the service which properly trained clergymen, working with medical men, can render in curing certain forms of disease; which exposition of new scientific knowledge, together with reports of the results of clinics carried on in his church, gave rise to what is known as the "Emmanuel Movement," interest in which for a time was international as well as national, and pointed the way to new fields of activity by the clergy and the church that are yet only partially cultivated.

It was in the state of Maine, in November, 1891, that representatives of several of the leading Protestant denominations met to devise ways by which sectarian rivalry could be lessened and wasteful competition put an end to in the towns and villages of the State, which movement led to the forma-

tion of an Interdenominational Commission, which has been the model for similar federations in other states, and has led the way to relations of comity in Maine that, after twenty years of effort, make it well-nigh impossible now to urge in rural regions that duplication of weak churches and poorly paid clergy which formerly existed. To the credit of this Interdenominational Commission also, must be put a movement, duplicated in Massachusetts, which has for its aim "rural betterment," and which has enlisted in its service representatives of all denominations in the State, the Grange, the colleges of Maine and the Bangor Theological Seminary. The similar movement in Massachusetts centers around the State Agricultural college at Amherst, and represents a combined effort of clergy, scientifically trained agriculturists and students of social reform, to make the rural church once more a center of light and leading for rural communities, and in ways other than technically religious and spiritual. To Bangor Theological Seminary in Maine also must be credited an interesting form of educational development and "extension" service, which now brings to that institution each year clergymen of the rural and smaller churches, men from all parts of the State, who for a season listen to lectures by members of the faculty and by eminent men of national fame; the effort being not only to provide the opportunities of a spiritual "retreat," but to broaden the outlook and keep alive the intellectual life of pastors with small incomes who otherwise could not be reached.

It was Andover Theological Seminary that, in 1891, gave its moral and pecuniary support to a social settlement in Boston, which (now known as the South End House) has come to be one of the largest and best-known in the country, and has been a pioneer in a new form of social christianity in which many of the divinity schools and universities of the country share as a matter of course.

Boston, now, like New York, on Sunday evenings, in Ford Hall, has an interesting and successful experiment in gathering in, from elements of the population that will not enter the conventional church, large audiences of people who listen to

candid discussion of live ethical issues by eminent speakers, local and from abroad, the financial support of the movement coming from funds left by one of the most generous of Baptist laymen, Daniel Ford. This venture, like that in Cooper Union in New York City, has indicated a method of reaching the people that has in it great and rich promise for the future.

Of the 32,936,445 members of Protestant religious bodies reported in the United States by the religious census of 1906, 934,247 were in the New England states. Of the 12,079,142 Roman Catholics then reported in the continental United States, 1,891,724 were in New England. The percentages, per population of the different states, at that time, were as follows: Maine — Roman Catholics, 53.3; Baptist, 15.4; Congregationalists, 9.9; Methodists, 9.4; Protestant Episcopal, 2.6. New Hampshire — Roman Catholics, 63.0; Congregationalists, 10.0; Baptists, 8.4; Methodists, 6.6; Protestant Episcopal, 2.6. Vermont — Roman Catholics, 55.9; Congregationalists, 15.0; Methodists, 12.0; Baptists, 6.8; Protestant Episcopal, 3.6 Massachusetts — Roman Catholics, 69.2; Congregationalists, 7.6; Baptists, 5.2; Methodists, 4.2; Protestant Episcopal, 3.3. Rhode Island — Roman Catholics, 74.0; Baptists, 7.5; Protestant Episcopal, 5.8; Congregationalists, 3.7; Methodists, 3.0. Connecticut — Roman Catholics, 59.6; Congregationalists, 13.0; Protestant Episcopal, 7.5; Methodists, 6.9; Baptists, 5.5.

Comparing the census of 1890 with that of 1906, there was not a New England state that did not show an increase in the relative number of church adherents or communicants, the gain for the section being not less than 15 percent during a period when in the country at large the net gain of communicants and adherents was less than 7 percent. Analysis of the number of residents of the section, who at the two periods of census-taking confessed lack of any church affiliation, shows a decrease. So that there is convincing proof that, relatively speaking, the section is not becoming less religious.

Publicity in New England

Publicity as beginning to be understood in New England commands a wide angle of vision and effort. Not merely is it regarded as the tool or agency of an individual or business organization, but a prime cause, a factor, in bringing about a larger realization, prophetic almost of what we have come to believe New England's future holds in store.

Publicity, of course, includes advertising of every sort. More than that, it marshals the sentiment of organization and community, and makes effective the power of this sentiment in accomplishing the results towards which this sentiment tends. It becomes, in a subtle and irresistible form, the agency of evolution. More than that, publicity, rightly understood, is the voice of the prophetic instinct of an epoch. It is more the articulate energy of a propaganda.

It is well to bear in mind that all the arts of scientific publicity as measurably perfected in the last half century are now being studied carefully by thousands, who at least if they do not comprehend all of its resources are helping to complete them. Hundreds of able and well-educated men in this section are devoting a large part of their energies to the perfection of methods of using scientific publicity to the fullest possible advantage; making this, in short, their life work. Consequently, there has been developed a breadth of vision, a range of power, and a sureness of application in the use of this modern force which makes it in given cases well-nigh irresistible. For the most part, it has been used selfishly by individuals and groups of individuals for the purpose of accomplishing results not always conducive to the general welfare.

A most significant development however in the past few years, more particularly observable in the past two years in New England, has been the use of the best arts of publicity for the accomplishment of purposes directly connected with the

welfare of communities and of this entire section. This has involved an educational process that has reacted most favorably upon the minds and methods of those who make the profession of advertising their life work. It has brought them into touch with the associated effort of business men to produce better commercial and economic conditions, and has made them in many cases the exponents and advisers of chambers of commerce and other organizations working for the general welfare.

In this development there has been an unusual awakening of appreciation for methods that hitherto have been regarded somewhat askance. There has been much aversion in the past to what might be termed self-advertising, even though applied to organizations and communities, and a more or less general feeling that this involved something reprehensible and lacking in good taste. The constant setting forth even in good, sensible, practical form of the superiority and advantages of a city or a business has been in times past regarded in New England as little short of immodest and undignified self-glorification. Now it is becoming to thousands of minds quite apparent that the truth about progress, spread as widely as possible, becomes an essential factor in accelerating that progress. Publicity in a reasonable and proper form about a good thing makes that good thing better known, and therefore more beneficial to a greater number. Accordingly we find advertising in its best sense being employed, not only by chambers of commerce and commercial organizations but also by religious and social groups, without any hesitation or apology.

This development has been coincident with the coöperative tendency of this age. It is in a way a world movement, but which has only lately become manifest in New England, and here, because of racial and educational influence, seems destined to reach a very high expression of efficiency.

It is to be remarked that in connection with the work of organizations having for their purpose the commercial, physical, social or moral development of a community, the need for publicity which finds expression most commonly is guided by a consensus of opinion arrived at through the concerted

effort of the ablest members of such organizations working in committee, therefore the publicity which emanates under such conditions is to a greater extent unselfish in its tendencies than almost any other form of advertising, and is sure to be more effective in accomplishing the result aimed at. Such publicity bears on its face the evidence of public spirit, and finds most ready access to the minds of those who are to be influenced.

A curious and quite significant result of this effort to gain expression on the part of organized bodies has been the establishment of numerous periodicals — organs of the body seeking self-expression. These periodicals become in a way a most influential source of information and dissemination of opinion. They are being organized and perfected, not in opposition to established newspapers and magazines, but rather as agencies of a fuller and freer expression of the activities of the groups producing and supporting them than could be gained in any other way. Much of the routine business of commercial and other organizations of importance to the membership of these bodies would not be regarded as news of interest to the community at large, and therefore would find difficulty in gaining admission to the columns of newspapers; so a paper is published for the members alone. It is to be doubted moreover whether in any other manner so accurate and complete information could be communicated to those who are interested.

To those who believe we are now in an era of subsidized newspapers and periodicals, it might be considered that the up-springing of this class of organ, for procuring publicity on behalf of semi-public organizations for mutual improvement and the perfecting of conditions affecting the public at large, is a natural and inevitable safeguard developed at the right time out of conditions that could not have resulted otherwise. However this may be, this new race of periodicals is here, is growing in strength and efficiency, and will perforce continue to increase in influence until the result is accomplished for which they have been created.

It can hardly be doubted that in addition to the develop-

ment of these publications there has been spread abroad amongst writers and newspaper men a new appreciation of the value of associated effort strongly tinged with altruism, which will in time bear fruit in the columns of long-established newspapers and periodicals conducted for private interests. If there exists scepticism on the part of newspaper writers and proprietors, with regard to the practicability of many projects advanced for local or sectional improvement, it will in time be gradually dissipated and replaced by a desire to take the leadership in work of this character and gain for their own enterprises the prestige which now in a large measure seems to escape them.

Along with the development of this thought of practical publicity is coming a deeper understanding of the uses of scientific advertising in relation to the promotion of the larger interests of the community, in its special application to manufacturing and trade in general. Many men of special attainment and experience have for years given consideration to this question. Already there has been created a voluminous literature on this subject. Groups, clubs and special agencies have developed a knowledge and practice of advertising as applied to the development of every sort of product. Professed experts have considered every angle of the subject, and have exhaustively investigated sources of information necessary to the formation of accurate judgment with regard to particular problems. Every avenue of information is probed by the publicity man utilizing all modern facilities and sources of knowledge. Advertising thus is becoming scientific because every science is drawn upon in aid of it. Advertising is becoming an art because all arts are levied upon and pay tribute to the same end. The advertising man therefore, in proportion as his work is scientifically performed, takes high rank among the professional forces of his time and locality. Marshaling all his resources he turns to the solution of special problems affecting New England's progress. New England is a manufacturing section. The success of its interests therefore depends largely upon perfecting methods of making manufacturing more successful. A wide survey of conditions sur-

rounding manufacturing shows that the greatest possible development involves attention to economic and social problems, and also to consideration of another vital interest — agriculture.

The publicity man undertakes to make a wide survey of all these subjects in their proper relations one to the other, and to apply such energies as will help perfect a higher degree of correlation and a greater measure of success. Working from this point of view he aims to diffuse as widely as possible amongst the people a general and accurate knowledge of conditions as they exist, of opportunities to be developed, of obstacles to be removed, and of methods which must be employed in order to show greatest results. This work is undertaken through many organizations whose definite approval is to be secured and voiced through the right channels. Technical and educational institutions are drawn upon for this work. Newspapers, magazines, periodicals, and every sort of avenue for reaching the public are utilized.

The organizations which advertising and publicity men are perfecting in the large centers of population become effective in spreading the truth so that the consensus of opinion of the best minds in the whole section becomes operative in all bodies working in harmony with them. Coincident with this work comes the continuous effort of individuals to apply the best methods and knowledge of the business of advertising to the development of particular enterprises, chiefly manufacturing plants producing articles of value to the general public. In so far as the managers and owners of these enterprises have become impressed with the viewpoint established by associated effort the work of promoting their interests becomes relatively easy. This work involves the application of many well-known principles of scientific publicity in use for years and carried to a high degree of success in many parts of the country. The successful application of scientific publicity plans to the manufacturer's problem depends at first upon a thorough analysis and an accurate comprehension of trade conditions, public demand, the equipment and resources of the plant, the desirability, degree of perfection, and the quality of the arti-

I BELIEVE in New England ¶In the preëminence of her location as the gateway to Europe ¶In the beauty and healthfulness of her hills and lakes ¶In the undeveloped, unlimited power of her rivers, and the ocean commerce of her seaports ¶In the variety and marvelous efficiency of her industries ¶In the skill and inventive genius of her workmen, the public spirit of her business men, and the resulting prosperity of her people.

I believe in New England's mission ¶In the glory of her past and the greatness of her future — and I believe that the same spirit of the Boston Tea Party, of Lexington, and the Civil War — the spirit that lavishly gave its blood, brawn, brains and money to the upbuilding of the country — still lives in New England's sons and daughters, and waits only the word to call all New England to the still greater things which are before us.

I believe in the tremendous, transforming power of optimism; I believe that it is lack of faith which checks the development of individuals, associations and sections ¶That skepticism is the only thing which stands between New England and her great destiny ¶And that when pessimism is transformed to optimism, New England will again take her rightful place in the vanguard of industrial progress.

Therefore I am resolved that I will avoid, and help others to escape from, the deadening, demoralizing rut of criticism, skepticism and inertia ¶That I will be a booster, not a knocker ¶And that *I will neglect no opportunity to show my faith in the future of New England and to labor unceasingly for its fulfilment.*

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cle manufactured. It also involves a grasp of all the latest and most efficient methods employed anywhere in promoting the manufacture, distribution and sale of similar articles. Not to know the latest and most efficient methods involves a serious handicap. In perfecting his plans therefore the publicity man aims to secure as large a measure as possible of sympathy and coöperation from those in management of the enterprise he is expected to promote. Without this help his work is seriously hindered. With the fullest possible support the apparently radical measures he proposes are certain to have thorough discussion and often after careful judgment, ample opportunities to be tested.

Advertising for a manufacturer aims to draw a straight line between his product and the brain of the consumer. This straight line being the shortest between production and consumption is woven about with many strands of appeal, argument and description, so that the demand shall be created in every mind thus reached which can only be satisfied finally by the purchase of the product. Alongside of this demand is developed an efficient selling organization which expedites in every possible way the rapid delivery of the article into the hands of the user at the least possible expense and loss of time. Whatever stands in the way of ultimate development of such a system is in time more or less ruthlessly relegated to the rear. Working along these lines the publicity man discovers that he is in opposition to many accepted methods that have been developed in past generations, and which are regarded in many cases as fundamental methods of business to be kept as inviolate as the laws of the Medes and Persians.

In newer sections of the country, where progress has been much more rapid and a much greater receptivity to new methods prevails, a very high order of competitive efficiency has been established, which it is necessary to meet in order to compete successfully; therefore the publicity man in New England sees that the full and successful use of his scientific methods depends upon gaining the confidence and support of the ablest men, the higher institutions of learning, and the best specialists in the recognized professions who are the ad-

visers of large business interests. Accordingly effort is being made to secure the introduction of courses of advertising in some of our colleges and universities, and lecture courses are being prepared for clubs and organizations such as the Y. M. C. A. This work is being pressed forward without impatience and with an unshaken belief in its power to prevail in proportion to its real value and conformity with truth.

The publicity man's work today is essentially scientific, because he accepts no conclusion that is not based upon careful research. Every part of the world is drawn upon for information which will enable accurate judgment to be formed regarding particular problems. He is not so much a radical as a pioneer, working with a microscope and guiding his course with a compass. Human nature becomes his principal field of close investigation, and the democratic motive of securing the greatest food for the greatest number is his ultimate objective. In connection with his work appears certain elements of statesmanship of the sort which does not appeal to legislative bodies or to courts for the right to act in behalf of the fundamental interests of human good. From this viewpoint arise some of the more serious problems which confront the advertising man. He is compelled to consider social and economic conditions which must be improved in order to make manufacturing more successful. He finds the development of agriculture an essential factor in reaching the highest condition of sustaining productivity.

Along with these subjects comes the investigation of transportation facilities, the development of harbors, the complete utilization of waterpowers, forestry, chemical and other resources belonging to the section. Especially must consideration be given to all questions surrounding the conservation of human life and the perfecting of the modes of civilization as bearing upon environment in manufacturing centers. Perceiving that the wealth of this section must necessarily depend upon the extent and value of manufacturing, the publicity man aims to make the manufactured article the vehicle for every sort of improvement necessary for its ultimate perfection to the highest possible standard and the perpetuation of

its success along the most approved lines of material progress. The manufacturer in order to succeed in the highest measure must necessarily make the best article. In order to make the best article he needs to perfect the best plant and machinery; finally, he needs the best type of workmen living under the best possible modern conditions. Publicity aims at securing all of these conditions at the same time that it promotes the sale of the article. It perfects the plant while it increases the trade territory. It improves the scale of living of the worker while it increases the output of the factory. It adds to the facilities for manufacturing while it adds new thousands to the list of purchasers. It guards against deterioration of the article while it provides against glut or dullness in the general market. A harmony of result is arrived at by a hard-headed attention to all the details that are factors in the case.

In the effort to bring about such important results is afforded ample opportunity to exercise qualities of statesmanship to the extent that where new laws are required to effect these results he aids in securing them; otherwise he places the emphasis of his work on the best of existing lines of approved effort whether already embodied in legislation or not. He appreciates thoroughly that advertising compels evolution upwards, and proceeds to exercise all of his ability in aid of that force. He does not hesitate therefore to call upon bankers, societies, educators and political leaders to assist in producing conditions that approximate towards the ideal.

Publicity men in New England are forced to accept many compromises, knowing that civilization progresses by compromises, but seeing clearly also that it often consigns to oblivion the man who makes them. The advertising man who would succeed must be uncompromising in the right and hold to truth as the compass to the pole star. Whatever cause he undertakes he aims to apply right methods of publicity in unifying sentiment regarding it. Lacking this there has been no general comprehension of the ends to be accomplished diffused amongst those who are interested in achieving them. If it be a movement to perfect civic conditions, many different minds have prevailed; if promoting the success of a manu-

facturing establishment, he finds that the executive staff, the workers in the manufacturing plant, the distributive corps, all are to some extent dependent upon a more or less general view, hazy and imperfect in outline, of the result they are trying to accomplish.

Publicity rightly organized in all such cases becomes the new testament of an organization uniting all its members, however widely scattered, in unity of belief and elevation of purpose, joining the public interests and demands with their individual and collective success. As to the agencies he employs in accomplishing his work, it is hardly necessary to enumerate them. They include newspapers, magazines, the trade press, billboards, street-car signs, the public forum, moving picture entertainments, stereopticon exhibitions, and a great variety of printed matter, in all of which the artist and the writer play a very important part. As to the outlook in New England for a better understanding and practice of publicity methods, there is a very hopeful condition.

In Boston, Springfield, Worcester, Providence, Portland and other cities, there have been established within the last two years powerful and successful publicity organizations, and others are to be formed in several of the principal cities during the next year. The annual convention of the Associated Advertising Clubs of America is to be held in Boston in August, 1911, and it will bring together probably two thousand or twenty-five hundred of the ablest publicity men, not only in the United States, but in Europe, South America, Mexico, Central America and the West Indies. So general and worldwide has become the interest in advertising methods during the past few years that not a civilized country can be named which does not boast of experienced and successful men engaged in publicity. Throughout New England large concerns are quite rapidly attaching to their staffs competent advertising men, who become valued counselors in all the developments of their business problem.

The advertising agencies, the business organizations for the publicity promotion of interests of many clients, are expanding their resources, and gradually publicity is becoming

in New England one of the valued and respected forces for accomplishing the most important results upon which this section depends for its ultimate success. Briefly, publicity is fostered here that the best things made in New England shall be the things best known throughout national and even international available trade territory; beyond this it promises the perfection of every condition of living and the hastening of every desirable end of progress. The advertising man is sometimes called visionary, because he looks at most matters from a station somewhere up above the blank monotony of the common level. It has been seen lately however, in another field of progress, that the aviator is a man who contributes from his station in the air broader views of topographical as well as social conditions. It has also been seen that a man in a flying machine can launch projectiles which, if properly loaded, would effect desirable revolutions. The publicity man therefore is encouraged by every new invention and every progress made in human advancement. Every step forward aids him in securing a wider outlook and a greater grasp of all available human resources. In his work in New England he aims to be an efficient factor in all forms of development, seeking no reward except such as comes legitimately to all who work well for the public welfare. In connection with the Chamber of Commerce, the New England publicity men seek to perform any service committed to them, giving their efforts as freely as men of any other class and gaining their reward in proportion as the work of this organization becomes successful and is made known not only throughout New England but in all the borders of our land.

Civic Work in New England

Civic spirit in New England has manifested a wonderful development within the past few years, and the extent of its spread, together with its concrete accomplishments, furnish a very accurate measure of the actual advance made by these states as the result of the revival of civic spirit and work everywhere. That spirit did not become practically operative in New England until after it had begun to work its wonders in other sections of the country; not, let us hasten to affirm, wholly because the people here were either ignorant of or indifferent to its power and the hold it seemed to have taken upon the consciousness of other sections, but rather because of the constitutional caution and desire for full knowledge which have ever characterized us. We did not doubt, nor reject; we simply were obedient to the historic tendencies that prompt us to wait just a bit until the other fellow has tested the matter. Also we had to overcome our ingrained suspicion that New England is not like other sections, and may not be subject to the same methods of promotion. We were not very quick to catch the new spirit of federated effort for the benefit of all, but when we did get it thoroughly into our consciousnesses we had it completely, and when we took up the work we did it with our traditional thoroughness and whole-heartedness. There are now many efficient civic bodies in all the New England states doing very good work. There are a few that are doing magnificent work — getting significant results through efficient organization, enlightened methods and enthusiastic membership. There are many civic bodies which may be put into the second class that are doing good work, but not the best work. And there is a third class of civic bodies that seem to be marking time. They meet now and then, they issue some innocuous literature, they have an annual "banquet," and that is about all. They do this good,

that it is always good for the town to have the citizens meet once in a while under other auspices than the annual town-meeting. If business men meet there must some common benefit result. An analysis of the situation with respect to the civic bodies in New England and their work would lead to the conclusion that the efficiency of the few is usually due to the efficiency and the knowledge of the guiding spirit, whether it be a secretary who has graduated from some good school of experience or members who have caught the truth about the power of concerted effort. The less efficient organizations do not lack in enthusiasm, but in leadership. A school for the training of civic executives is needed. The local board of trade, especially if located in a small city or large town, usually selects some citizen for executive officer, who either serves without pay or is given so small an amount as to allow him no opportunity for good work. He is also tied to the traditions and prejudices of the town. The board of trade should never be organized unless there is assured some money to promote the business it is supposed to perform, and unless there is assured an energetic and intelligent executive. A properly conducted board of trade in any town should bring to the town definite benefits equal to those the town would receive from a large factory or mercantile establishment, and its conduct should be upon business lines such as the manufacturer or merchant would enforce for his business. All of these bodies wish to be of real benefit to the communities they are in and of. The trouble is that they do not know what to do, or how to go about doing that which they do know. There needs to be a central organization, and better coöperation among these associations. There is now but very little team work among the civic bodies of New England, or among the executive officials. Closer coöperation would give the smaller bodies opportunity to absorb some of the enthusiasm of the larger ones, learn their methods, and duplicate their successes.

Massachusetts has not only the greatest number of civic bodies that are working for the business betterment of her cities and towns, but also the most efficient. There are several

which may be considered as practically on the same plane of efficiency, and they have very significant records. The work, in its present development, is very young. It is not possible to state that this or that city owes so much to its board of trade, or so much to its chamber of commerce. These bodies, when they are successful in their executive officers and the spirit of their members, create business through so many and so diverse channels that it is never possible to correctly assess their worth and estimate their work. They are either the visible results of an extraordinary growth in public spirit or the causes of such growth. Not only do they accomplish much definite and traceable benefit but they incite to greater activity every zealous member, and increase his power to such an extent as results in more and better accomplishment on his own account. A good civic body also has a very marked effect upon the government of the city, and induces such a modification of local politics as operates to the decided benefit of all the business interests. Manifestly, the greatest benefit any civic body can claim is found in its influence upon the individual members. This cannot be assessed, as it cannot be known. It is never fully realized by the men most profoundly affected. In Massachusetts there are vital bodies of this character in nearly all of the cities, and in many of the larger towns.

Boston has one of the most notable civic business bodies in the world, in size, in scope, in quality of membership, in history, and in performance. The Boston Chamber of Commerce has no rival, as there is not another body of the kind that has its scope and method. It has few if any peers in membership and record. It is young, having as yet had insufficient time to get its plans in good working order, and to bring to conclusion the important works it has undertaken. It sprung into life as part of the concrete answer to a distinct demand in Boston for some medium through which not only the business but the public interests might be intelligently and forcefully promoted. The germ of the idea was evidently in many minds, so that when a small coterie of gentlemen took up the question of the advisability of at-

tempting to bring about a consolidation of the Boston Merchants Association, the Boston Chamber of Commerce, and the Boston Associated Board of Trade, the project appealed to the business sense of so many of the leading men that it soon became a matter of arrangement of details, which was accomplished without much delay, and the new Boston Chamber of Commerce became an accomplished fact on June 15, 1909, with a total membership of about 2500, and operating under a special charter from the Massachusetts legislature. By the end of that year the membership had risen to 3645, and at the end of 1910 there were about 4000 members. The Chamber owns a large building in the business section of the city, in which is the grain board room and many offices of grain and produce concerns, as well as the general offices, committee rooms, library and reading room, etc., of the Chamber. There are 38 committees for handling the work of the Chamber, beside several sub-committees; and these committees are expected to originate their own work. They are not allowed to degenerate into indifference. Their meetings are called through the office of the secretary, and members are called by telephone a few hours previous to the meetings to assure their attendance. The work of the Chamber is of two kinds: One class of members are traders, and are interested in buying and selling in the exchange room, and have a certain different relation to the main body than do the ordinary members, though they participate in all of the activities of the Chamber. The ordinary members have not the privilege of the exchange, but are in the main interested in the public works undertaken by the Chamber. These works are of a very varied character, and include many matters that pertain to the moral, political, and social well-being of New England, as well as the more specifically business matters. The plan of work which the Chamber has followed provides for the thorough consideration of whatever concerns New England, through committees, and the giving to those committees authority to employ such expert assistance as may be needed. The work of the Chamber is passed upon by a board of twenty-four directors and an executive committee

of eight. The executive committee takes matters from the committees, considers them, and passes them to the directors, who finally legislate upon them. The executives are a president, two vice-presidents, a secretary and a treasurer. The secretary is the working executive officer and the general manager of the Chamber. The interests of the Chamber extend to all business and commercial matters that affect New England, and generally to all matters of public concern affecting New England; for it is to be noted that the Boston Chamber of Commerce is not local in its activities, and includes within its scope the whole of the territory of New England and the interests of all the cities and towns contained in New England. It is likely to intervene in national legislation, in state legislation, in city affairs, and in town affairs. It is always working for the public health, and often interests itself in moral and ethical matters. It is efficient. It gets things done, because it is in earnest and the people of Boston and New England are back of it. The chief element of strength of the Boston Chamber of Commerce is the devotion of its membership, as shown in the effective work of the committees. This work has appealed strongly to the imagination of the men of Boston, and they are giving unselfish and unstinted personal service to its accomplishment. The Chamber takes a fraternal interest in all similar organizations in New England, and is ever ready to assist them to the extent of its ability. It is trying to inaugurate some system of coöperation among the secretaries of all civic bodies in New England, which, if it succeeds, will in a measure correct the defect in the organization and work of these civic bodies which was specified at the beginning of this chapter.

Since this book is one of the enterprises of the Boston Chamber of Commerce it may not be meet to further elaborate upon its organization and work.

The New England boards of trade, merchants and business men's associations outside of Boston, including the different state organizations, reach a total of about 160, of which number Maine and Massachusetts contribute 102, and the remaining 50 odd organizations are divided among the other

four states, Connecticut leading, closely followed by New Hampshire. Appropriately enough, Connecticut had the honor of launching the first of these great commercial bodies, the Chamber of Commerce of New Haven, organized on the evening of April 9, 1794, 115 years ago, being, with possibly one or two exceptions, the oldest organization of its kind in this country. Portland, Maine, organized its Board of Trade in 1853, and for 57 consecutive years it has done good work for the merchants, manufacturers, and commercial interests of that Maine city. About the year 1870 the third wave of organized commercial effort swept over New England. Providence led off, March 5, 1868, when at a meeting of representatives of 300 firms, corporations, and individuals, the Providence Board of Trade was formed. Truman Beckwith was elected president, and Louis W. Clark, secretary. The Bangor, Maine, Board of Trade had its inception Saturday, April 27, 1872. Moses Geddings was the first president and B. F. Tefft the first secretary. The Worcester, Mass., Board of Trade was the third large commercial organization to spring into being at this time. It originated in 1873, under the title of the Worcester Business Exchange, but as this name was thought to be misleading, the name was changed in November, 1874, to Worcester Board of Trade, under which title the body was incorporated May 4, 1875. The Springfield Board of Trade was organized in March, 1890, by seventeen of that city's leading business men, H. P. Stone being chosen the first president. Boards of trade were organized in Manchester, N. H., about 1890; Hartford in 1888; and in other towns and cities at intervals since these dates.

Of the Massachusetts civic bodies nearly all are active and successful in work. We quote from letters from secretaries to show the character of the work of some of the boards of trade in Massachusetts:

Springfield: "The early work of the organization lacked some of the systematic activity which a large membership and generous financial support later made possible. Gradually smaller civic organizations merged their interests with those of the Board, so that now we are the clearing house

for any matters that may require the coöperative effort of our citizens for accomplishment. Our present membership is considerably over one thousand. Our resources are confined to membership fees and dues and special funds which are solicited from time to time to defray the expenses of certain parts of our work. The officers of the Board include: President, first and second vice-presidents, secretary, treasurer, auditor, and a board of twenty directors. The directors are the governing board. A secretary and two assistants constitute the permanent executive force. The general work of the organization is carried on through standing committees, each committee having particular charge of a special branch of activity. Some of the accomplishments of the Board in the past have been: The establishing of a modern building code; an effective smoke nuisance law; the securing of trolley express for much of western Massachusetts; the securing of railroad rates, service and facilities of much benefit to western New England shippers and residents; the establishing of the 'Springfield Idea' for a sane and safe July Fourth celebration, the first of its kind to be carried out; the establishing of a definite policy to educate the farmer of western New England to a higher plane of efficiency. The more important things in which this organization is now interested are: The developing of a river front improvement to link with a definite civic plan; the securing of navigation of the Connecticut river from Long Island sound to Holyoke; the revision of the city charter," etc.

Worcester: "The Worcester Board of Trade as an organization is 35 years old, but its principal activities have been confined to the past twenty years. During that time it has grown to 850 members and has assisted in developing the Heart of the Commonwealth from a city with a valuation in 1890 of $73,531,000, to one with a valuation for 1910 of $141,228,602. In other words, Worcester has practically doubled in wealth in the last two decades, and the fact that it has done so is due more largely to the activities of the men connected with this organization than to any other one group of men or factor. The population of Worcester when

the renaissance of the Board began was 84,655. Today it is 150,000. In the Worcester directory for 1870 it required 65 pages to detail the business activities of this city. In the 1910 directory it took 102. In 1890 the value of all the manufactured products turned out in this city was less than $30,000,000. In 1895 the value of our output had increased to $34,000,000. In 1900 the value of the goods made in Worcester was estimated at $53,000,000. Today it approximates $100,000,000. The value of the wire made in Worcester, to take one single industry, amounts to $1,000,000 a month. In a city that has doubled its population and valuation in 20 years, and tripled its output, it can well be imagined that the Board of Trade has its work cut out for it during every one of the twelve months of the year. Ten years ago, almost before any other commercial organization had awakened to the value of such an adjunct, this Board established a magazine as its official voice — the 'Worcester Magazine.' It goes to every member of the Board, to every United States Consul on the globe, and to a very large number of purchasing agents. Over 30,000 of these magazines were printed last year, and it did a business of $13,931.98, with a profit of $1249.88. The Board has a president, vice-president, treasurer, auditor, clerk, an executive committee of five, who are members of the board of twenty directors, beside the secretary and his office force, which includes a paid editor for the Magazine. The organization is further subdivided into twenty regular and three special committees in which are enrolled 207 men. The Board, in addition to its annual banquet, which is the great social event of the year in Worcester, holds from five to seven smoke-talks annually in its own hall, when a lunch is served and public questions are discussed."

Pittsfield: "Five years ago, in April, 1904, the merchants of this city established a Merchants Association as a means of protection against ticket-sellers, miscellaneous ads, programs, etc., and grafters of all kinds, the membership fee being $2 per year. The association was carried on for this purpose, with a banquet and several smoke-talks each year. About two years ago, with the same organization views, etc.,

MRS. JOHN Z. GOODRICH

The originator of the first village improvement society in the United States, organized at Stockbridge, Mass.

the association began to take part in larger affairs, such as advertising the city, handling Fourth of July celebrations, means of transportation for citizens, better trolley service, etc. On Jan. 1, 1909, we established a noon-day luncheon, every Wednesday, at our leading hotel, some speaker, local or otherwise, giving a half-hour talk on some live question of particular interest to Pittsfield people. At the annual meeting, April 11, it was voted to change into the Pittsfield Board of Trade with a regular membership fee of $10 and a sustaining membership fee of $25. At the present time [August, 1910], we have 150 members, with an assured income of nearly $3000. We have rooms in the Agricultural National Bank building, with a secretary who gives his entire time to the work, a strong board of directors, and good working committees. Our object is to advertise the city, try to attract new industries, and make the problems of those we have easier; make the city clean and beautiful; help people to have homes of their own; and to coöperate with the city government in every way possible."

Fitchburg: "The Merchants Association of this city was organized in 1887, limited in membership to retail merchants, the object being to improve conditions in the trade. It gradually extended membership until any reputable citizen was eligible. In 1905 it merged with the Board of Trade, and was incorporated under the title Fitchburg Board of Trade and Merchants Association. Practically, it is a social club, bringing its 497 members in touch with one another at its eight regular monthly meetings, which are preceded by a supper, and followed by discussions on the current topics of interest by speakers of note from out of town. At these meetings we have an average attendance of 250."

Fall River: "The Fall River Merchants Association was organized April 11, 1902. The stated object as given in the constitution reads as follows: 'The object of this association shall be to bring the retail business men of the city into closer business and social relations; to make them better acquainted, and encourage a spirit of coöperation in all matters which make for the general welfare, and to provide a medium

through which concerted action may be had on matters of mutual interest.' For the first three years the membership and annual fee was but $1. Since then it has been $2, and the by-laws were changed to admit wholesale as well as retail merchants. Up to the present time none but merchants, or people who buy and sell merchandise, real estate, insurance, etc., are eligible to membership, but a committee has been appointed to change the rule so that other citizens of importance may be admitted. The present membership is 235 firms (a firm counting only as one member). We have but one imperative rule for members, and that is, forbidding advertising in fake schemes and other 'hold-ups.' From time to time the Association has interested itself in civic matters, until at the present time it is looked up to and generally considered the most influential and broad-gauged body in Fall River. There is no stated time for meetings, and no meetings are held unless there is something of importance to be done. Practically everything is done by the executive committee at special meetings called by the president."

New Bedford: "The New Bedford Board of Trade, organized March 5, 1884, was formed for the purpose of giving to New Bedford an organization of progressive, public-spirited citizens, ready at all times to take up and promote matters of importance to the community. New Bedford has long had the reputation, outside its borders, as a conservative city. In its commercial history two great industries have flourished, the whaling industry and the manufacture of fine cotton cloth and yarns. Since the 18th century New Bedford has led the world in the former, as today it leads the United States in the latter industry. The nature of these industries has tended to conservatism among the managers. This conservatism has manifested itself in the community, and, naturally enough, the local Board of Trade has reflected the prevailing influence. New Bedford has had no large project on foot since the organization of the Board of Trade but the influence of the organization has been a potent factor in its accomplishment. A proper sense of modesty forbids the claim that the Board of Trade has accomplished all

the improvements which have come to New Bedford in the last two decades. Credit must be given to the public spirit of the citizens, and particularly to the newspapers, which, for 365 days in the ordinary year, and 366 days in every leap year, are preaching the propaganda of New Bedford's present prosperity, and are calling attention to the city's future prospects. It has been the aim of the representative members of the Board of Trade to foster this spirit of helpfulness. That this method has brought success is attested by the fact that in the fifteen months ending with March 31, 1910, $15,000,000 were added to New Bedford's industries, and the additional fact that in the first six months of 1910, of the five and a half millions of capital invested in new mills in this city more than one half has come from outside the city's limits. The membership of the New Bedford Board of Trade has been maintained for several years past at an average of 250."

Haverhill: "The Haverhill Board of Trade was organized in May, 1901, with Charles H. Hayes president, and Howard H. Gage secretary. The plan of work has always been to accept all opportunities to further the prosperity and welfare of Haverhill, and to devise opportunities when study and thought could produce them. The Board works with the City Council for improvement in educational facilities, streets, parks, playgrounds, etc.; works for improvement in transportation, freight, express, and passenger, and particularly hard, all of the time, for improving navigation on the Merrimac river, a matter of vital importance to every city in the Merrimac valley; works to increase the manufacturing industries by assisting local firms, and by inducing outside capitalists to locate plants in Haverhill. In 1904 this slogan was adopted: 'If factories are vacant, fill them. If factories are needed, build them.' During that year, factories being needed, the Haverhill Building Association was formed, subscriptions for stock obtained, land in the heart of the city purchased, and in 1905 a modern, mill-constructed, eight-story brick factory, containing 75,000 square feet of floor space, was completed. In 1908 factory number two, of the

same description, containing 125,000 square feet of floor space, was completed, and immediately filled by local manufacturers in need of increased facilities."

Lawrence: "The Lawrence Board of Trade was organized February 8, 1888, with James H. Eaton as president, Charles A. De Couvey as secretary, Arthur W. Dyer as treasurer, and about seventy-five members. Most of the mill agents and many of the business and professional men of the city were enrolled on its list of membership, which rapidly increased after the first meeting. Its formation was due to a feeling which had been growing for some time in the minds of the business men of the city that the advantages of the city as a manufacturing and business center ought to be increased and enlarged, and the facts pertaining thereto published abroad as an inducement to draw new industries to the city."

Salem: "The Salem Board of Trade was organized June 10, 1901, with William S. Felton president, and Charles H. Danforth secretary. The Board is interested in, and works for, the betterment of Salem, its business interests, and its business men. It is especially interested in the improvement of Salem harbor and the development of the water front. As a result of its work in this direction a commission has been appointed by the Mayor and City Council for the purpose of reporting a plan of harbor improvement."

Attleboro: "Recognizing the need of some public organization, the object of which would be the booming of the town and the protection and furtherance of its industries, a number of business men of Attleboro gathered in the fall of 1908 and took steps towards forming the Attleboro Board of Trade. A membership of one hundred was all that was hoped for on the start, but the opening meeting on January 4, 1909, saw nearly 225 on the charter lists. Almost simultaneously with the birth of this organization came the announcement that one of the town's most prosperous concerns was considering overtures from several New England towns, and might leave. The Board of Trade took the matter up and agreed to attempt to erect a $50,000 factory for the company. In a fortnight's time the entire $50,000 had been sub-

scribed and the factory was to be erected. From that time on the organization was called upon to consider all sorts of schemes. Automobile manufacturers, marine engine makers, flying-machine experts, and many others, demanded an audience, for the word had gone forth, 'Here is a Board of Trade that does things.'"

Holyoke: "The Holyoke Business Men's Association was organized January 22, 1897. The present membership is 225. The objects of the association are: Promoting the interests of the mercantile and manufacturing business of Holyoke. We have been successful in protecting the merchants from trading stamps, program advertising, and things of that nature. We have used our best efforts to make Holyoke a good place to do business in. We have never offered bonuses of any kind for the location of new industries. Holyoke has had a steady growth from nothing in 1850 to 58,000 in 1910."

Brockton: "The purpose of the Brockton Board of Trade is to promote the industrial, mercantile, and municipal welfare of Brockton. It was organized in January, 1897, shortly after the Regal Shoe company had moved to Whitman. Business men thought it time to have an organization to try to check such removals from town. The Board has since done good work in that line, and has brought some new industries into the city. It has also been instrumental in promoting industrial harmony, through conferences with the labor unions and shoe manufacturers, in several instances."

Marlboro: "Previous to 1901 there was a Merchants Association of many years standing. It had however so declined that in that year efforts were made to interest the merchants in working together for the common interests of the city. These efforts resulted in the reorganization of the Merchants Association as the Marlboro Board of Trade, with a membership of about two hundred. Work was immediately undertaken for the commercial upbuilding of the city, meeting at first with fair success, but finally dwindled until interest seemed to wane to the point of indifference. In the spring of 1908 new officers were elected and renewed efforts were made

to increase Marlboro's standing as a commercial city. A pamphlet was issued presenting the advantages possessed by Marlboro for business and as a place of residence. In December, 1908, the constitution and by-laws were revised and efforts made for an increase in membership, with the result that new interest was aroused and many new members added."

Gloucester: "The plan of work of the Gloucester Board of Trade is to continuously seek to interest people, away from Gloucester, in the place and its principal industry, the fisheries. This is done by getting as much publicity through the columns of the press as is possible, and recently by the issuing of a booklet illustrating the place. Its membership is 193. At this season of the year [summer], one of the principal objects is to interest the summer visitors in the place, and in so doing they have accorded to them the courtesies of the use of the rooms of the Board of Trade. We get good coöperation from the business men, and some assistance from the municipality, in carrying through suggestions made."

The Waltham Board of Trade has organized a building association to erect factory buildings for tenants who do not require whole buildings. In North Adams a Merchants Association was organized in 1905. Framingham has a live Board of Trade, organized in 1895, with a present membership of 320. "It has secured the location in South Framingham of the Dennison Manufacturing company, employing more than two thousand people in the factory; the Framingham Shoe company, which has erected the finest shoe factory in New England and now employs about eight hundred hands; the Robb-Mumford Boiler company, which has erected one of the finest plants in the country and employs one hundred and fifty men; the Gurney Heater company, just commencing the erection of a factory with a floor space of 150,000 square feet; the Williamson Housman company, Young and Holberton, and the Framingham Hat company, all straw goods manufactories, together employing more than eight hundred hands; and many other smaller concerns."

Maine has a State Board of Trade, embracing fifty-two

local boards with a membership of more than 5000. It was organized in the fall of 1899. "The purpose of this association," as set forth in the declaration, "is to concentrate the power and usefulness of the various boards of trade of the State in one corporate organization, in order to secure prompt unity and harmony of action in the proper consideration of questions, especially pertaining to the material interests of the State at large, as well as to foster and strengthen the efficiency of each organization comprised in its membership." Hon. Henry Lord, of Bangor, was for fourteen years the president, being followed by Hon. Edward B. Winslow, of Portland, who served four years; Hon. Charles S. Hichborn, of Augusta, two years; and Hon. D. J. Callahan, of Lewiston. The late Marshall N. Rich, of Portland, served as secretary for thirteen years, up to his death on December 25, 1902, and the office has since been held by E. M. Blanding, of Bangor. Gorham N. Weymouth, of Biddeford, has been treasurer since the inception of the Board.

Portland: "The Portland Board of Trade was founded in 1853, and has continuously asserted itself in the best interests of the largest city in the state of Maine. It has been made up of a majority of the citizens of Portland having the largest business interest. In looking over its history and noting the objects accomplished, it may be stated that the organization has been the most important factor in the growth and development of the city. It has nearly 700 members."

Bangor: "The Bangor Board of Trade was organized in 1872, and received a charter from the legislature the following year. A new charter, under the general laws of the State, was granted in 1878. It has been a vital factor in the commercial life of Bangor and of the State. Its work, judging from a printed summary, appears to have been more in the line of protection against unwise legislation and business projects than as a constructive industrial force, though it has done some excellent work in that line."

Augusta: "The Augusta Board of Trade was incorporated January 22, 1906, and has a membership of about 275 busi-

ness and professional men, with regular monthly meetings and an annual meeting with banquet, which is always an important occasion. The Board is the working force in industrial matters in its city, and represents the organized effort of the business men to do something for the city. The Board has done good service in the way of securing and retaining manufacturing enterprises."

A NEW ENGLAND HIGH SCHOOL

Gardiner: "The Gardiner Board of Trade was organized in 1887, with a membership of 56. Its purpose is to retain and promote the industrial welfare of the city of Gardiner. Its plan of work has mostly been along the shoe line. Resources $75,000; we estimate this amount on an outlay of $110,000 since 1892, the year the Board was incorporated. The membership is 210. The object is to interest manufacturing that can use between eight and ten thousand horsepower. Our success has been very gratifying to us in what

we have accomplished. City and business men have heartily supported the Board."

In New Hampshire there are several live boards of trade. One was organized at Concord in 1889, which has not been especially effective. It has 150 members. Claremont has a live Board of Trade with 150 members, organized in 1908, which has done very effective work for "the largest town in New Hampshire." Rochester organized a Board of Trade in 1908, with 194 members, and at the end of that year there were 234 members. Several improvements have been effected in the town, and new industries have been secured. In Portsmouth there is a Board of Trade and Merchants Exchange, an amalgamation effected in 1909, with 150 members. In Littleton there is the White Mountain Board of Trade, "devoted to 'the Alps of America.'" Some fifteen towns located in the White Mountain region are interested.

In Vermont there are several boards of trade that are enterprising and successful. At St. Albans one was organized in 1908, at Barre and Montpelier in 1909, and a commercial club at St. Johnsbury in 1910. Each of these organizations has accomplished definite results.

Rhode Island has boards of trade in Providence, Pawtucket, Woonsocket, and Westerly, all of which are doing good work; and there is a League of Improvement Societies, which includes some thirty societies, and has been influential in what is known as village improvement work.

In Connecticut the New Haven Chamber of Commerce is the oldest institution of its kind, as it probably is the oldest in the country. But mere age does not count for much, since though this board was organized in 1794 it was not active in the present day sense until 1909, when it was reorganized, and now has 1162 members. Its first active year was productive of good results for the city, and the Chamber is now working for a new post office, power buildings for small manufacturers, a trade school, school playgrounds, an armory, a new railroad station, several street extensions, a harbor lighthouse, and other public improvements.

Hartford: "The Hartford Board of Trade was organized

in 1888, to promote the trade, manufactures, and commercial enterprises of the city; to encourage intercourse between business men; to improve facilities for travel and transportation, and to achieve in every legitimate way the growth and welfare of the community. It has a membership of 400, and besides the income derived from fees it has a substantial sum invested in first-class securities. The organization has been very successful in inducing new industries to locate in Hartford."

Waterbury: "The Waterbury Business Men's Association was organized in 1904, being the successor of the voluntary association known as the Waterbury Business Men's Association, and its predecessor, the Merchants Association. It has a membership of 250, and includes professional men and manufacturers as well as merchants. The association was organized for the purpose of forwarding the business interests of Waterbury, to work for the advancement and elevation of all business dealings, to create and foster a fraternal feeling among the business men," etc.

Meriden: "The Meriden Business Men's Association and the Meriden Board of Trade were consolidated in 1908 and are certainly doing a great work. It has come to pass that we can get almost anything we ask for from the city, and especially is this true from the big railroad corporation whose line passes through our city. Almost every request we have made for the past ten years has been complied with. Our association was formed May 9, 1899, with seventeen members, and we now have a membership of 233."

Putnam: "The Putnam Business Men's Association was organized in 1908 with a membership of nearly one hundred. Two preceding organizations, a Business Men's Association and a Board of Trade, had lapsed into inactivity, and it was deemed wise to organize an entirely new association. The present association holds its meetings quarterly, at which time questions of practical interest to the city are discussed, often by speakers of ability from outside."

An Expert's Estimate

In Baltimore there is published a journal called *The Manufacturers' Record*, which is devoted to the manufacturing interests of the South. It is edited in a very able and wise manner by Mr. Richard H. Edmonds. This editor is probably the best informed man with respect to the South, and no section ever had a more able and single-hearted advocate. Mr. Edmonds visits the other sections of the country to correct his point of view and to cultivate nationalism. He spent a portion of the summer of 1910 in New England, and wrote letters to his paper describing what he saw and recording his conclusions. From these letters we are permitted to quote some paragraphs, stating his estimate of New England by a practiced observer whose interests and heart are for a section which some people are so narrow as to consider our rival in one great line of manufacturing. Our most enthusiastic favorite son could scarcely be expected to entertain a more just and sane view of New England than is here expressed.

"A story often told, but worth repeating, is that at some convention there was a roll call of states and the delegate from each was asked to tell of the chief productions and advantages of his State. The delegate from California told how small were the riches of the gold mines of his State as compared with the riches of its soil. Before your enraptured vision, as he painted the picture, you saw appear the vineyards and the orange groves of that fair land. Colorado came, with its story of wonderful scenery, of glorious climate and of rugged mountains bursting with untold mineral wealth. The delegate from the Dakotas told of the waving wheat fields stretching for mile after mile, and with an abundant harvest making glad the heart of the farmer. In the long list of states, until Massachu-

setts was reached, each had claimed a rare combination of natural resources and advantages. The speaker from that State said:

"'With great pleasure have I heard of the grain fields of the West, of the far Pacific coast land that flows with milk and honey, of the iron and coal of Pennsylvania. As I have heard the story of how upon the South nature has poured with a lavish hand every blessing of climate and soil and timber and mineral wealth I have marveled at its potentialities. Then, as I have thought of my own state, I have contrasted the barrenness of its natural resources with the wealth of which you have boasted, and I have been forced to say that of these heaven-given advantages Massachusetts has none. We boast of no natural resources. We can only boast of what we have been able to do through the utilization of the brains and energy of our people. Instead of grain fields at home, we draw our foodstuffs from the West. Instead of cotton plantations at home, we feed the spindles of our mills with the product of the South, and even send unto far-away Egypt for some of the cotton for our finer products. Instead of iron mines and coal mines at home, we look to Alabama and Pennsylvania for iron and steel, and to the Virginias and Maryland for the coal which runs the machinery of our factories. Gathering from the world these materials, we have touched them with the magic wand of energy, of trained brain and hand, and they have poured out for us a flood of gold and given us an industrial development which has made Massachusetts one of the wonders of the business world.'

"When we remember that on this little bit of rock-bound soil, using the materials drawn from other sections and other lands, Massachusetts has built a business structure so solid, so vast and all-comprehensive that with 3,000,000 population it is turning out manufactured products equal to 60 per-cent as much as the 14 southern states, and that its working people have out of their accumulated earnings put in the savings banks of Boston and neighboring cities over $700,000,000, or only about $200,000,000 less than the total national banking capital of the United States, we may well ask our-

selves if the delegate from Massachusetts was not justified in boasting of the power of brains and energy.

"Some months ago a business man in the South, filled with enthusiasm about the progress around him, and not familiar with what New England is doing, said to me in all seriousness: 'We have beaten New England to a standstill.' He thought that the building of cotton mills in the South had practically stopped the building of mills in New England. He thought this section was stagnating, living upon the past, while to him the South seemed pulsating with the thrill of life. He thought his own region was growing as no other land had grown, and that New England was decaying. He is a type of thousands of men throughout the South. Ask any ten southern men you find who are not themselves cotton manufacturers about the growth of the cotton-mill industry in the country, and probably nine out of ten will tell you that the South is developing its textile industry very rapidly at the expense of New England, and that the latter long ago reached the limit of its cotton-mill possibilities. Believing that, these men are satisfied with what the South is doing. If they could be brought to New England their amazement would know no bounds. Here they would find a region that is indeed pulsing with the thrill of life. Here they would find a degree of prosperity and wealth which they could scarcely comprehend.

"Massachusetts has 3,000,000 population, but it has $728,000,000 in its savings banks, or an average of nearly $250 represented in this form of savings for every man, woman and child in the State. In this State there are over 2,000,000 savings bank deposit accounts. The South, with 28,000,000 population, has only $166,000,000 in its savings banks, and of that amount $81,000,000 is in Baltimore. Even including Baltimore, the South has less than $6 per capita in its savings banks, against nearly $250 per capita in Massachusetts. Omitting the state of Maryland, the South has only about $3 per capita in savings banks. Massachusetts has eighty times as much per capita, or, in other words, for every dollar per capita the South outside of Maryland has in savings banks, Massachusetts has about $80.

"This disproportion in the tangible wealth represented by savings bank deposits is only indicative of the vast difference in the industrial progress and the general wealth of Massachusetts, and, for that matter, of New England, as compared with the South. A study of these facts is of profound interest.

"Turning from savings banks to manufacturing interests, it is found that at the end of 1904, the latest date of governmental figures giving the manufacturing statistics of New England, Massachusetts had invested in manufacturing enterprises, $965,948,887. The South, with more than eight times as many people, with one hundred times as much land area, with a thousand times more natural resources, had only $1,597,636,872 capital invested in manufacturing.

"New England as a whole had $1,870,995,405 manufacturing capital, or nearly $300,000,000 more than the South, Maryland to Texas included, though the South has thirteen times the area of New England and more than four times its population. The value of the manufactured products of New England in 1904 was $2,025,998,438, while that of the South was $1,787,926,325.

"But some may say that these figures are five or six years old, and that during that time the South has made very great material development. That is true. The capital invested in manufacturing in the South has grown from $1,500,000,000 in 1904 to over $2,200,000,000 at present, and the value of manufactured products from $1,787,000,000 to over $2,700,000,000. This is a marvelous increase, worthy to be commended.

"But what has Massachusetts been doing in the meantime? Has New England been beaten to a standstill, as my southern friend thought? Instead of being beaten to a standstill, New England has within the last few years awakened to greater activity in industrial development, in the improvement of its railroads, in city building operations, and in everything that makes for material progress, than at any time for a quarter of a century. Some ten or twelve years ago pessimism for awhile ruled in New England. The cotton man-

ufacturers of this section had not kept pace with the improvement in machinery. A great deal of antiquated machinery was in use, while the mills of the South, being entirely new, were being equipped with the latest and most up-to-date machinery. This difference gave the South a great advantage at that time. The press of this section and public men here talked of New England as though it were indeed decadent, as though its cotton-mill industry was doomed to destruction through the competition of southern cotton mills. Many southern people in their enthusiasm accepted these discussions as indicating the real condition of New England and drew therefrom the inference that New England had given up the fight; that the South had won the victory.

"New England beaten to a standstill? My friend did not know that at the very moment when he was speaking New England was putting $75,000,000 of new money into the building of textile industries, while the South felt, and justly so, that it was doing great things because it was spending $25,000,000 in building new cotton mills. New England beaten to a standstill? I only wish that the South could be beaten to the same kind of a standstill. Wherever one turns from the moment he enters New England he sees on every hand the evidences of increasing wealth. He sees the power of energy combined with almost limitless wealth made by the same energy. It is the human agency without raw materials, but the human agency developed to the highest type, determined to win material success regardless of a lack of advantages. It has indeed gathered its raw materials of manufacture from the four quarters of the globe and touched them with the magic wand of energy, of trained brain and brawn, and from this touch there is pouring out a stream of wealth so vast in its proportions as to justify the boast of the delegate from Massachusetts.

"The savings bank depositors of New England, made up mainly of the poorer classes or working people, as distinguished from the capitalists, have to their credit enough money to buy at par the capital stock of all the national banks of the United States and still have a balance on hand

THE HOME OF MR. MAXFIELD PARRISH, CORNISH, N. H.

twice as great as the savings bank deposits of the whole South, Maryland included.

"In New England the habit of thrift and economy, long developed through generation after generation, has resulted in an accumulation in savings banks to the extent of over $1,250,000,000, whereas the aggregate national banking capital of the United States is less than $1,000,000,000. The vast sums deposited in savings banks in this section, in which Massachusetts and Connecticut lead, do not, however, by any means represent a tendency on the part of the people to deposit all of their savings in this way, for investments in local financial and manufacturing institutions, as well as in railroad and industrial enterprises throughout the country, run far up into the billions, much of it made up by small investors.

"New England early learned the value of massing its own capital through savings banks, the deposits in which have proved a very powerful factor in furnishing the capital needed for industrial development. It at the same time learned the value of insurance companies in gathering premiums from hundreds of thousands of insured, both fire and life, and drawing to that section the millions thus accumulated, all of which necessarily adds to the financial strength of the community and increases the financial power of this section. Springfield and Hartford are striking illustrations of the possibilities of well-managed insurance companies, both life and fire, in the development of vast financial resources in what may be called the smaller cities, where large financial operations are not usually looked for. The deposits in the savings banks of this section have been a great help in financing its industrial growth. So vast a sum gives to New England the command of what may be called almost limitless capital for safe and conservative investments and loans. The ramifications of the influence of the savings banks are widespread. They touch every phase of business life. Here is a sum available for investment in gilt-edge securities, for loans on real estate, and for much of the financing which can be safely done with savings bank deposits, greater by 30 percent, than the

aggregate of the capital of all the national banks in the country.

"It is a noticeable fact that the foreigners coming into New England either bring with them, or else promptly learn from their surroundings, the value of thrift and savings. Many of these foreigners no sooner land and secure work than they become depositors in savings banks. They do not at first venture their savings into business enterprises or into the purchase of land, but almost from the day their employment begins they become money-savers. Some of the money thus accumulated is sent home to take care of the people there until those who have come to spy out the land find that it is a goodly country and a safe place in which to locate permanently. Then they bring their families from abroad, and, once settled here, they branch out beyond deposits in savings banks and become land buyers. Many of the foreigners who are doing a large part of the industrial work of New England are becoming landowners. Some of them are buying farms on which Americans had failed to make a living; some are buying what might be called abandoned farms, or what to an American looked like a dreary waste, a hopeless bit of land, and by hard plodding work they are making more than a living. These land-buying foreigners, coming, as many of them do, from the northern part of Italy, where farming methods are of the best, and where the people are entirely unlike those of southern Italy, are proving that land on which an American would starve is capable under their system of work and care of supplying many of the fruits and vegetables for the markets of New England, to their own profit as well as to the advancement of the State. Thus the habits of thrift and saving, long credited to New England, are not to be lost to this section by the incoming of foreigners, but, on the contrary, these people are either bringing with them or imbibing New England's spirit, and in some respects surpassing the New Englander himself in the things which have made Yankee thrift known the world over.

"The savings banks of New England are not so much due to the thrift of the people as the thrift of the people is due

to the existence and the influence of savings banks. These institutions, founded in early days by men who recognized the value of accumulating the pennies and the dimes and the dollars of the people, developed everywhere the feeling that everybody must have a savings bank deposit, the lack of which in New England is almost everywhere accepted as an evidence of thriftlessness. No sooner is a child born than a savings bank account is opened to its credit. Every baby born in New England is a potential savings bank depositor. The amount deposited weekly or monthly may be small, but it is the aggregate of these small amounts that makes the sum total. Massachusetts, with 2,000,000 savings bank accounts to a total population of 3,000,000, illustrates the universality of the custom of opening a savings account. Out of every three people — men, women and children, paupers, idiots and drunkards — there is an average of two savings bank deposits to their credit.

"To this habit of saving must be attributed very much of the wealth of this section. It is true that the vast manufacturing interests of New England as a whole have proven enormously profitable. It is true that this section, through its operations in the development of the copper interests of the country, has made many millions; in fact, some hundreds of millions through copper alone. It is true that Boston capital, which has gone out into the West and the Southwest, into Mexico, and to some extent into the South, seeking adventure and profit, has been constantly coming home loaded with the accumulated profits of wise investments. New England, like England and France, draws a great income from its investments outside of its own borders, but New England would never have been able to build its vast manufacturing enterprises nor to engage upon so large a scale in the development of mining operations and in the building of railroads elsewhere if savings banks had not been in existence. In the entire South, Maryland to Texas, the aggregate of individual deposits in national banks is $660,000,000, just a little more than half as much as is on deposit in the savings banks of this section. If over night the individual deposits in the national banks of the South could be doubled, how great would be the

influence for the expansion of every business interest, and yet the aggregate then would be but a fraction more than what today is available in New England savings banks.

"The thing which appeals to the tens of thousands of tourists who crowd this section in motor cars is the splendid roads. New England has learned the art of road-building. Many of its roads are well-nigh perfect. They were well built at the start, and now they are well maintained. The lover of outdoor life finds the exhilaration of a motor car trip over these wonderful highways a rare treat. New England recognizes the great value of its summer tourist business as a factor in its prosperity. The $60,000,000 or more spent by the visitors to this section during the two or three summer months stimulates every business interest. Partly by reason of this fact, state and city officials throughout New England fully appreciate the importance of making this section so attractive as to command an ever-increasing tourist travel. Many of these roads have been constructed under the direction of the best engineering skill, and are maintained in perfect condition by constant care and attention. Notwithstanding the extension in road-building and the ever-increasing use of the roads by automobiles, it is an interesting fact, which has lately attracted attention, that the cost of maintenance of roads in Massachusetts was much less last year than five or six years ago, when the automobile was something of a rarity. There are in this section a few main leading highways over which one can travel from New York to Portland, to the White mountains and around by the Berkshire Hills and scarcely ever strike a bad piece of road. From these main highways many fine roads lead in different directions, while other roads not up to date or modern in any respect can still be found where the limited travel has not yet brought about modern road improvements. The fact, however, that for hundreds of miles one may ride over roads almost as perfect as the best-laid city street absolutely free from dust, naturally appeals mightily to every lover of good roads, of outdoor life and of the automobile.

"In studying the question of roads and the tourist business it should be borne in mind that good highways are not

built simply for the pleasure of the tourist, as important as that is to the country. Primarily they are one of the most important factors in the economic development of any region. There are places in New England, such, for instance, as the twenty or twenty-five mile road from Hartford to Springfield, where a road almost as perfect as can be built is lined on each side with comfortable farmhouses, every house in hailing distance of a neighbor, where well-painted dwellings and perfect yards create the impression of an ideal agricultural condition hardly to be duplicated elsewhere. The farmers along this road are never shut out from companionship, nor the children from school attendance by bad roads. There is no kind of weather which could make these roads like the impassable, muddy roads found in parts of the South, as well as in many places in the North and West. Along every good highway there will grow up flourishing communities; property will enhance in value by reason of the increased profits to the farmer due to the lessened cost of hauling. In any well-settled country this enhancement in value of land and the development of the country tributary to the road will more than repay the cost of its construction. The building of good roads is not an expensive luxury; it is an investment which will return more to the county and the state than the cost of the work.

"Bad roads tend steadily to drag civilization down; good roads are a strong factor in advancing it. They help to increase profits in business and help to advance educational and religious activities. For this reason the development of the tourist travel is of paramount importance. What the automobile and the tourist may be instrumental in doing in bringing about the building of good roads will from an economic standpoint many times offset to the country the entire cost of the automobile industry. If the pessimistic statements of some bankers about the extravagance of the American people in the purchase of automobiles were true, the country could still afford to throw away that much money if by throwing it away the importance of good roads could be fully impressed upon the people of all sections."

Commission Government

In the government of Massachusetts there are many commissions, and they have had much to do with the present condition of public affairs in that State. The other New England states have followed the example of Massachusetts, but have not taken the same comprehensive view of the benefits of commissions to regulate their affairs. The question of the benefits to be derived from this idea in government has not been definitely settled, even in Massachusetts; but it is very manifest that that State is now in possession of much that tends to make it distinctive and desirable which it would not have had were it not for the sundry commissions that have from time to time been created by its lawmakers. It has its wonderful park and boulevard systems, its Metropolitan water and sewer systems, its state roads, its railroad regulation, the restraint in Boston money-spending, the effective and dignified police system of its capital city, its gas and electric light regulation, and some other admirable things, as the fruits of the tendency to put their faith in commissions the people of the State have manifested. To the plain citizen it looks as though these things are worth while, and to the people of the country at large they seem to be worth while. These commissions, save the highway, railroad, and gas and electric light, operate within the area of the Boston Metropolitan district, and they have made that district notable the world over. There is not a parallel to the Metropolitan parks, nor to the Metropolitan water and sewer systems, in America. It is argued by some that there should be no emulation of these works — that they are against public policy, extravagant, unnecessary, and burdensome to the tax-payers. But they are magnificent, and it was the people who authorized them; and the people would vote for them again if the necessity existed or the opportunity arose. They have made of Boston and its im-

mediate suburbs a region that delights every good New Englander.

The effect of these great public improvements cannot be estimated; the amount they add to the real valuation of Boston and New England cannot be stated. They are an asset for the city of Boston, the state of Massachusetts, and for all of New England; and they are an asset for every resident of these states. Whatever they cost, they have been cheaply acquired. Not only are they such an influence on life as to make a very distinct element in good citizenship, in and of themselves, but their creation, management and maintenance strongly promote the best phase of good citizenship. It has come to be regarded as one of the highest honors the State can confer, one of the most dignified and desirable of all the services a man can give to the State, to serve on the commissions every legislature is certain to create — and often without pay. Many of the minor commissions which serve continuously, and draw heavily upon the time of the members, receive no remuneration. Some of them even pay their own expenses.

The tendency toward commission government in Massachusetts is very much older than the recent vogue of commission government for cities. The Railroad Commission is forty-three years old, the Gas Commission twenty-seven, the Civil Service Commission twenty-eight, the Park Commission nineteen, the Highway Commission eighteen, the Transit Commission sixteen, the Water and Sewerage Board, as now organized, eleven, the Police Commission six, and the Finance Commission two. The Railroad Commission has not only secured for Massachusetts equitable treatment from the railroads, but has shaped the national policy of dealing with railroads to an appreciable extent, and its methods have been adopted, in some degree, by many of the other states. It has not been an influence that has been for the exclusive benefit of the people; it has done much constructive work that has been of the greatest benefit to the railroads themselves. The functions of the Railroad Commission, the Gas Commission and the Highway Commission are largely judicial. They are arbi-

trators, and their course has been so fair and so based upon expert knowledge and full information that it is very seldom that they are obliged to do more than make recommendations. A very significant instance of this advisory power being accepted as of the force of a court decree was the radical change made in the telephone rates late in 1910 as the result of long and thorough study and investigation by the Highway Commission, and solely through a simple recommendation. The Telephone company made no contest, no protest even. It accepted the judgment of the Commission, while registering its dissent from some of the conclusions, and immediately set about making the suggested rates effective. It is almost impossible to conceive that so revolutionary a change in the policy of a great corporation, involving its income and actually endangering its dividends, could have been thus effected in any other state; certainly it could not have been brought about until the company had tested the matter in all the available courts and exhausted all excuses for delay.

Such examples of effective arbitration for the benefit of the public by the Railroad Commission are numerous; in fact, such work forms a large proportion of its labors. This oldest commission, the Railroad Commission, has wide powers, and has some sort of supervision of all the operations of all the steam and electric roads in Massachusetts. The digest of the laws it is concerned in the enforcement of forms a book of 265 pages. A record of the accomplishments of this Commission, for the benefit of the people of Massachusetts and New England, would fill several volumes as large as this. The board is composed of three men, and they are usually men not of extraordinary ability or judicial training; and they are not paid salaries large enough to attract men with established business. Yet they have been, without exception I think, able, impartial and acute judges, and have discharged their extremely arduous and difficult duties in a manner to reflect great credit upon themselves and secure for the people the full benefit of laws enacted to conserve their rights.

The Highway Commission was created in 1893, "to improve the public roads," and in 1906 it had the telephones

(" all companies engaged in the transmission of intelligence by electricity ") put under its control. Its great work has been the building of the famous Massachusetts state roads, which are treated in another chapter. It has had the satisfaction of solving the great question of how to make a road that automobiles cannot ruin in one season, and of having its methods copied by many other states. Its work will in a few years have resulted in making all the chief thoroughfares in New England good roads in truth.

The Boston Rapid Transit Commission, as it now exists, was created by the legislature by the act that created the Boston Elevated Railway company, and both were chartered " to promote rapid transit in the city of Boston and vicinity," and the powers and duties of the commission were explicitly stated in the original act, and have been enlarged or modified in many subsequent acts. The original rapid transit commission, created some years previous to this, was empowered to deal with the broad question of rapid transit in and about Boston, and had initiatory powers. It did much good work, in the way of investigation and recommendation. Its life was ended with the creation of the present commission, and the present commission was not given powers to initiate plans. Its office is to construct subways that have been or may be specifically authorized by the legislature, and such work has engaged its attention. Many people do not differentiate between the two commissions, and think that the present commission has the power of initiative, which seems not to be the fact. It has certain discretionary powers, but those powers are not considered to extend so far as the origination of new projects.

The Metropolitan Water and Sewerage Board was formed in 1901 by consolidating a former Water Board and Sewerage Commission. The old Water Board was created in 1895. In the following year the great Wachusett project was initiated by the purchase of land, and in the spring of 1908 the reservoir was put into service. This great work cost, to 1910, about $11,000,000; the whole work of the Commission from its formation to 1910 has cost $41,044,304.64 for water. Of

sewers there are 102 miles, of which the Board has built 93 miles and bought nine miles; and something like 1177 miles of local sewers have been connected. Sewage is contributed from 57.37 square miles of territory, having 678,662 people contributing sewage to the system. Ultimately this system will care for the sewage from 191.37 square miles of territory.

The Metropolitan Park Commission was created in 1893. It has control of 10,258.58 acres of parks and parkways in thirteen cities and twenty-six towns. The best known of these park reservations are: Blue Hill, 4906.43 acres; Middlesex Fells, 1898.09 acres; Stony Brook, 463.72 acres; Charles River, 635.72 acres; Mystic River, 291.57 acres; Neponset River, 922.05 acres. The parkways have a total length of 31.678 miles. Most of this park land is wild, and little effort is being made to improve it. It is kept clear of underbrush, and there are roads for driving, and footpaths. There are two beaches for the general public — Revere and Nantasket. These great park areas form an unrivaled attraction for the people of the cities in the district, and are full of nature lovers at all seasons of the year. The Commission is all the time working to purify the rivers along the shores of which there are reservations, and in this is doing a very important work. The parkways are a constant delight, embracing as they do so many of the most attractive of the drives about Boston and the contiguous cities and towns, and much care is exercised to keep them in good condition. They form a series of pleasure drives unexcelled in any other region in America.

The Gas and Electric Light Commissioners have control of all the companies producing gas and electricity for light and heat. The commission is twenty-seven years old. It has had much to do with those necessities of domestic and business life, and the extraordinarily good conditions that now prevail with respect to them are to be in large measure credited to it. When we contemplate the liberal and enlightened policy, and the relative low prices, of the company supplying gas in Boston in the light of the Addicks régime, it really seems that we may contemplate the millennium with some degree of assurance. This commission has charge of the interests of the

people with sixty-seven gas and fifty-seven electric light companies, and twenty persons or corporations that make gas or electricity for light or heat. Perhaps this commission has had to wage more than its share of the fight to obtain for the commission idea the recognition it now enjoys, and to convince corporations that their interests and the interests of the people are, in the long run, identical.

HOME OF HELEN KELLER, WRENTHAM, MASS.

The Civil Service Commission of Massachusetts has been organized twenty-eight years, but it is only since the city of Boston adopted its present charter that it has become so immediately connected with the political and municipal life of the Metropolitan district as to bring it sharply to the front as an element of power to be reckoned with, and upon. It is now vested with the power of approval of appointments of department heads by the mayor of Boston, and it is not hesitating in a policy of withholding approval of many appointments. It is in this function brought into the daily life of the city in a very consequential manner, and has become one of

the vital elements that are working to regenerate the politics of the metropolis of New England.

The Finance Commission was first created in June, 1908, and its powers under the act ceased on the first day of December the same year. It was recreated in June the next year as a part of the machinery of government provided by the new Boston charter, composed of five members appointed by the governor. Its duties and powers are: "To investigate any and all matters relating to appropriations, loans, expenditures, accounts, and methods of administration affecting the city of Boston or the county of Suffolk, or any department thereof, that may appear to the commission to require investigation, and to report thereon from time to time to the mayor, the city council, the governor, or the general court." And the mayor may refer to the commission payrolls, bills or other claims that he may consider of doubtful validity or excessive. This commission has caused much commotion in political circles, and has been of the greatest service to the city. Its chairman has a salary, and the other members serve without pay.

The office of Police Commissioner was brought into being in 1906. He has control of the police of Boston, and is appointed by the governor. He holds office five years. This action was taken by the legislature to take the Boston police out of politics.

The New England States

THE sketches of the several New England states that follow were written by "favorite sons." They may be adequate and well-rounded appreciations, and they may be thought to be lacking in some particulars. The editor of this book has not ventured to edit them. It was his plan to get from some well informed and enthusiastic son of each of the states an optimistic and enthusiastic pastel, summarizing in a few paragraphs his belief and hope and appreciation. Running through all the other chapters of this book is the industrial story of all the states. Here are pæans of men who are devoted to their home states; and these appreciations from the hearts of sons who love them are better estimates of the states than are the figures of their statistical bureaus.

MASSACHUSETTS

"God Save the Commonwealth of Massachusetts," says the Secretary of State of the state of Massachusetts upon every possible official occasion; and it is not exaggeration to say that that sentiment is in the hearts of all the people of this great and greatly distinguished State. Massachusetts has the most interesting history among all the states of the Union, it has done the most interesting things — is now doing the most interesting things; it has the most interesting institutions and the most interesting people. Massachusetts has the most interesting industries; and it has the most interesting manner of disposing of the income from those industries. It has the most interesting politics; and the most interesting city governments. It has the most interesting chief city in the world. It is not so large, in land area, as some of the other states — as many of them; its land is not

as well worked as land is worked in some other states. Massachusetts has more tradition than some of the states, and makes better use of it. Tradition keeps Massachusetts where it stands: "Massachusetts — there she stands!" That is the way we all think of Massachusetts, when we wish to think well of the State. We are not inclined to do a great amount of explaining about Massachusetts. We allow others to exalt their states, knowing full well that the eulogist will come around to the singing of the praises of Massachusetts, sooner or later. It seems impertinent for one to expound Massachusetts, when all know all about it, and feel almost all that the most ingrained Bay Stater can possibly feel. When men rail at, and about, Massachusetts we know that down in their bottommost hearts there is a pæan for the old State struggling for utterance; that in the backs of their heads there lie arguments for the State that we ourselves cannot match. No state has such a hold upon the imagination of all the people of the country as has Massachusetts; none is so deeply rooted in their affections. So why should anything be said about Massachusetts?

Well, we all like to talk about our people. We all love to speak of Massachusetts. We all like to quietly go over the things Massachusetts is and the things she stands for, mother of the nation that she is, torch-bearer for Civilization that she has always been, leader among and of the states that she is, prophet of the new order and apostle of progress that we know her. What good is there in our land that has not come from Massachusetts or been welcomed and fostered by Massachusetts? Think of the wealth-making industries that she has produced, and the men that have sprung from her towns and farms! Think on what she has done for religion, ethics, sociology, civics, history, letters, art, science, learning, education; think of what she has done for industry, trade, commerce, manufacturing, farming, and all the useful and learned arts and crafts! And think of what she is now doing in and for all these lines of human endeavor and betterment!

It is not easy to indicate that which constitutes the patent of the distinction of Massachusetts. The State is hospitable to man, and when real men come to her she gives them a wel-

come in that coin they most prize. Massachusetts contents her people. They do not wish to leave her, and they seldom do leave her of their free will and accord. One learns of men from all other sections and states going to live in New York, after they have amassed more or less money and passed some tens of years in doing so. But who from Massachusetts has gone to that Gotham for the pure joy of living there, since

TYPICAL BOSTON SUBURBAN RESIDENCE

Mr. William Dean Howells's hegira? Men and women return, from spoiling the heathen in other sections, to Boston to live out their span of life; and it is when they come to Boston that they begin to live.

But Massachusetts is far from being the mere Mecca for the dilletanti and the resting place for those who are weary of the world. It is the home of the virile and the creative. It is here that industry and trade are born and nurtured. Travel from Boston to North Adams, and from Boston to Frenchville, and from Boston to Greenwich, and from Boston to Alburg, and cover all the country between these routes, and

look over the land throughout all New England. All the roads lead to Massachusetts. All the currents of trade set towards Massachusetts. All the men are thinking of Massachusetts, and all the people hope to visit Massachusetts. Sum up all the industries in all the New England states, and those of Massachusetts, and note the variety, the value, the importance of those of the Bay State in comparison. But there is no need of comparison, no justification for it. Massachusetts is not provincial enough to institute comparisons with any of the sisterhood of states she is a member of. The Massachusetts people disregard state boundaries, in their minds as well as in their acts.

Massachusetts has focussed all her distinctive life in Boston, making that city unique among all the cities of the world. All Massachusetts people see themselves expressed in Boston. There never was a city in the history of the world that was so truly expressive of the people within its influence as Boston is expressive of the people of New England. And it is expressive of a strong and consequential strain of people all over the United States. Especially is there a broad and deep flood of people spreading over the entire northern half of the land who acknowledge the influence of Boston and Massachusetts, because their forbears were of that Pilgrim flood which crept over the land from Plymouth to San Francisco, leaving settlers all along the route. There is no racial tie in America so strong as this tie that binds to the Pilgrims; and all of the Pilgrims went out from Massachusetts.

In this connection, we are inclined to leave the facts of the dominance of Massachusetts in learning, art, science, etc., with a reference; and to attempt in a sketch like this to even hint at the industrial prominence of the State is almost folly. That may well be left for the imagination of the reader. Massachusetts leads the world in the manufacture of textiles and textile machinery, in shoes and leather, in tools of precision, in wire and the multifarious products of wire, and the manipulation of iron by skilled labor; in jewelry it divides the supremacy with Rhode Island; in books, toys, small wares, clothing for men and women, watches, saws, cutlery, firearms,

SCENE IN BERKSHIRE HILLS

automobiles and parts, machine tools, candy, chocolate and its products, cordage and a hundred other things that might be catalogued, Massachusetts is prominent.

And when all these great and prominent industries are passed in review we have still to consider the real source and guaranty of the industrial greatness of Massachusetts. The late Edward Atkinson once was showing some men about the State, and had been with them to see many big factories and institutions. One of them said to Mr. Atkinson: "Now we can understand why New England has grown so enormously wealthy. We have seen the great manufacturing enterprises that created this wealth."

Mr. Atkinson said: "No, New England's wealth has not been made out of what you saw today. Tomorrow I will show you the real foundation of its prosperity."

On the morrow he took them through many of the smaller towns and into the byways and alleys and narrow streets of the larger cities, where small factories are employing a few men, and where great buildings are occupied by hundreds of individual concerns, each making some little article of general use. He carried them first through one place and then another, in which he showed them every variety of manufactured product, and returning that night he said to them:

"It is not the great factories you saw yesterday that are responsible for New England's progress, but the thousands of smaller enterprises, in which the owner and a few workmen are carrying on diversified industries and laying the foundations for the steady expansion into the great factories of the future. In these thousands of small industries, covering every range of human activity, is the true source of New England's wealth. From them come the geniuses who make possible our inventions and improvements in machinery. From them come the leaders capable of developing their small plants into great enterprises. In them are found the true spirit of New England's development."

It is the serious spirit of progress which gives Massachusetts its peculiar distinction among the states; that spirit of

intelligent receptivity and devoted promotion. This State is a magnet that attracts currents of progress in science, religion, civics, ethics, and particularly in sociology; and there is a large element of the people that seem always to be on the watch-towers to discover and welcome and promote whatever appears in the realm of progress. Boston is one of the most serious-

A MASSACHUSETTS VILLAGE STREET

minded places in the world, yet there is nothing new under the sun but will receive a welcome and an exploitation there. Such is the nature of the Boston people. Massachusetts was the first state, as it now is in a large sense the only one, to adopt a policy of state sociology, in its park, water, sewer, highway, railway and police commissions. These are sociological in essence and in practice. The people of the State are strongly inclined to this communal idea of coöperation, and have been so inclined from the very first landing of the Pilgrims, who were always working out some scheme of coöperation. The Massachusetts people are thrifty; and they are thrifty in a

sense unknown in other sections of the country. They save, whether or not they properly live. Think of 707 million dollars in the savings banks of the State! Think of the 50 millions in the coöperative banks! Think of the 35 million savings deposits in national banks! And think that these figures represent but a small proportion of the money saved by the thrifty people of Massachusetts, the larger proportion being invested in houses, business, bonds, mortgages, stocks, land and many other producing avenues.

It may raise a smile to say that Massachusetts excels by reason of her climate, but such is the fact. Good-natured ridicule has so often been its lot that sight has been lost of its economic value. Travel the world through, and everywhere you will find that brain and hands work best in the middle ground between tropic heat and arctic cold, and where the air gives a bracing tonic by nearness to sea or mountain. This is notably the result in the case of northern Italy, under the Alps, in Switzerland itself, in Norway and Sweden. Recall the intellectual contributions of Scotland to the renown of Great Britain. It seems to be the rule that, within bounds, the easier it is to live the smaller the contribution of life to the world's progress.

So there is compensation in our rocky shores, the meager soil of our hills, the blasts of winter, the chill east wind. For half the year men work the harder because there is no fun in loafing. During the other half they do not find activity indoors so irksome as in sunnier lands. This is the reason why New England has developed more of mechanical skill and ingenuity than any other part of the land. It is the reason why we need have little fear of the rivalry of other sections in the arts calling for deftness, quickness and the mechanical instinct. Indeed, we may look with complacency on the gradual transfer of our coarser industries to other regions, feeling that the men they would have engaged here are thereby set free to apply themselves to other occupations of higher grade and more remunerative.

Inevitably, this advantage has aroused our people to the importance of encouraging and developing native skill. By

THE "MINUTE MAN" OF 1776

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instinct it has been felt that we ought to give earnest study to ways and means for training our workers. So we have established textile schools, have made manual training a part of the curriculum of most of our high schools, have been generous to our agricultural college, and through both public and private beneficence have made our Institute of Technology take a foremost place. Add to this the noteworthy attention given to scientific investigation and instruction by Harvard, Tufts and other colleges, and you will understand why we have achieved a leadership in the arts and sciences that will not in our day be threatened.

It is in this matter of education that we have been most bountifully blessed through the wisdom and foresight of our fathers. Whether or not we may claim the honor of having given the public school to the world, sure it is that Massachusetts led in its important development. Horace Mann, generally recognized as the father of the modern common-school system, planted the seed in Massachusetts. Since his time we have wonderfully expanded the system, and although its benefits have now been put within reach of the younger children in many other states, we still lead in the percentage of older pupils getting instruction at the public expense.

Another priceless inheritance of Massachusetts is Puritanism; modified by modern conditions, to be sure, but still a powerful influence working for sobriety and earnestness. To illustrate its effect, take, for instance, race-track gambling and the selling of pools on running races. The magnitude of the evil effect of this sort of thing on the working classes of England is well known, and in some of our own states it has become a menace to the toilers. Our people have never allowed it to become a serious evil here. Indeed, it is probably safe to say that the gambling instinct — such a curse to the poor of purse and weak of mind — has by the force of custom been more repressed in New England than almost anywhere else in the world.

We cannot claim such a degree of success in handling that still greater affliction of the toilers — the drink habit. Our Puritan forbears did not look on the excessive use of liquor

as a grievous fault, and its economic cost was not felt until the factory system had matured. Now that the cost to the community is coming to be realized we are making intelligent progress, and under our local-option system employers can find at every turn communities where the public sale of liquor does not tempt the wage-earner.

It is fair also to call attention to the economic aspect of another moral problem, the observance of Sunday. From the purely material point of view the attitude of public opinion in Massachusetts is no small asset. In France the waste of human vitality through constant employment has compelled legislation for one day of rest in seven. In other countries and in other states of our own country the economic importance of maintaining a higher standard of efficiency by periodic rest is coming to be one of the vital questions. With us it never has been an important problem, because the standards of our society have preserved the old codes of conduct, with only such revision as the new social relations compel.

There is another reason why we should be grateful for the place nature has given us in which to work. Its geographical relation to the Old World and the New gives us a permanent advantage that no other locality can ever threaten. Boston is the nearest great port to the Old World, and it is the easiest ice-free port to reach from the huge areas of the Canadian Northwest that within a few years will play such an important part in feeding the world. The grades through Vermont have been shown to be the lowest, and sooner or later grades determine land transportation. When the political barriers between us and Canada are removed, as they are sure to be in time, and when the growth of commerce compels the use of the through routes that are the easiest, Boston is sure to reap a harvest.

Meanwhile we are preparing for the future by developing a high type of citizenship, steadily learning how to work together for the common good. The stage of civilization any community has reached is shown by its power of coöperation in matters of common concern. Of late the civic spirit of Massachusetts has taken on new life, has demonstrated new powers

of development. The growth of all sorts of trade organizations, the concerted study of civic problems, the increasing sense of self-respect, unite to prove that we are marching.

To illustrate by some of the forms this determination to progress has already taken, it may be cited that Massachusetts has led the land in the improvement of her highways, so that today her roadbeds are unequaled anywhere in America for the purposes of commerce, agriculture, or pleasure. We are annually spending in systematic fashion hundreds of thousands of dollars for the protection and improvement of our shores and harbors, and for the abolition of the grade crossings of our railroads. We are giving the most earnest attention to the public control of our enemies in the way of disease, making a gallant fight against tuberculosis, beginning to learn how to handle inebriety, stamping out contagion of all kinds. With humane laws relating to the inspection of factories and schools, for the lessening of accidents in industrial occupations, for the regulation of the work of women and children, we are so prolonging the average span of life that captains of industry find here a greater average of service on the part of their soldiers than anywhere else. We have found that humanity is not inconsistent with profit, and that philanthropy pays dividends.

Massachusetts leads in these things not alone because they pay, but because she believes they are right. She invites both capital and labor to come within her borders, not alone because of the certainty of gainful use to excelling advantage, but also because of her promise that each shall be ensured tranquillity, comfort and justice.

We of Massachusetts realize that the seeker after ideal conditions of life will go far to find so favored a place; that he will indeed never find it. The things that make for a full life, for a merry life, for a useful life, for an ideal life, are all here in the old Bay State; and the people are among the best and most important of those ideal conditions, for it is here that the Brotherhood of Man has its best exemplification, and here that a man counts for what he is.

CONNECTICUT

For benefits received that are almost fundamental in a higher civilization the world owes a great debt of gratitude to the forbears of Connecticut's army of manufacturers. So common have become many of the mechanical contrivances first dreamed out and later put into workable form in Connecticut, that the world is prone to forget, likely to fail to appreciate, a little state tucked away into a corner of New England — and New England herself a mere corner of this great nation. If Sparta fed her national pride with the boast that her "chief product was men," no less may Connecticut boast that her chief product has been a long line of men of inventive genius, of mechanical ingenuity, and men withal of farsight that puts the stuff of dreams into something tangible, something not only patentable but into machines that are almost uncanny in their operation, so nearly do they seem to think for themselves. Go into almost any of the great mechanical and industrial plants of the United States, France, England, South America, yes, even Japan, if the crafty little men have not filed it off, and you will find in innumerable instances that their machinery bears a trade-mark showing that it was made in Connecticut.

But why dwell further on a point that needs no emphasis though it bears expounding, for, since it is so well known, it may be overlooked that Connecticut stands head and shoulders over many more boastful larger states in the country, in the matter of industrial leadership.

Not long ago a Connecticut man was visiting an industrial concern in the Middle West, and in the course of conversation he learned that the superintendent was from Connecticut, that of nine foremen in charge of departments seven were from Connecticut, and that 29 percent of the mechanics in the establishment had had their training in little old Connecticut. And most of them wished they were back!

It is no disparagement of any of her five sister states in the New England family to call Connecticut "A Hive of Indus-

try." Where in all the three thousand miles from east to west, where from Portland to Miami, can you find a state with so great a variety of products made by the hands of men and women? Only an infinitesimal percentage of its manufactured wares can be classed as unnecessary to the civilization of today. In other words, Connecticut makes standard goods, not faddist toys. To list this variety of products would be tantamount to printing the catalogue of a mail-order house. Chief in the category one would find woolen and cotton goods, boots and shoes, hats of straw and felt, corsets, rubber boots and shoes, soft rubber goods, automobiles, carriages, bodies for both automobiles and carriages and the accessories of both, belts, buckles, webbing, sewing machines and attachments, directories and guides for many cities, paper boxes and blotting paper, dies, chucks, saws, hardware, special implements, rowboats and yachts, bird cages, cut glass and silver table ware, fishing reels, concrete stone, rifles, shotguns, cartridges, typewriters, locks, trunks, the rulers that line the ledgers in the counting houses of the world, computing machines, wall fabrics, drop forgings, safes and strong boxes, prayer books, pianos and organs, phonographs, spectacles, an ever-increasing line of special machinery to make tools or to make machines or to finish the parts of intricate mechanism assembled in a thousand factories, flying machines, pins and needles, the baser coins for South American countries, copper wire for telegraph, telephone and electric light. These and many more things are made in the neighborlike factories of Connecticut cities with just about as great disregard of co-relation in use as they are jumbled in the list above capitulated — a striking evidence that Connecticut genius is boundless in versatility.

This being true, it is not amazing though it may amuse to relate that a well-known manufacturer of New Haven not long ago returned from Vienna bringing with him (and paying Uncle Sam duty upon it) a dainty little clock which he had bought in the Austrian capital as a souvenir of a pleasant visit there, and, as he thought, typical of its handicraft. While he was entertaining friends who called to welcome him home he showed with pride this specimen of his taste and discrimi-

nating selection in foreign purchases. To his chagrin, one of his friends, with keener eye than the traveler, pointed out to him, stamped on the inside of the clock, the trade-mark of the New Haven Clock company! Perhaps it is true that some of the scarabs which the sheiks along the Nile sell as "stolen from the tombs of the Ptolemies" were fashioned out of Connecticut trap rock!

Come down, if you will, from Boston in your automobile and tour the counties of Windham, Tolland and New London, and count, wherever there is fall of water enough to generate power, mill after mill where textiles are woven; or go even into Willimantic and supply your community with thread. Where you do not find mills you will find dairy cattle upon a thousand hills, whose givings supply eastern cities with milk, butter and cheese. Continue through Hartford county and note thousands of acres under cultivation to supply lovers of the Havana weed with the delicate and high-priced Connecticut wrapper leaf. In Hartford county note the smoking stacks of the silk mills of South Manchester; or the machine shops, the bicycle, the typewriter and automobile factories of the capital city; of if you journey through New Britain or Bristol, see the great concerns that make household hardware, automobiles and brass goods. Turn down through Middlesex county, and in town and hamlet note the manufacturers of pumps and other hydraulic machinery, cutlery, sheet metal goods and enameled ware, novelties in bone and ivory, plows and harrows. When you reach New Haven county you can find in New Haven, shops that manufacture anything that is made in any city, town or village of the State. As you proceed through New Haven county note the well-tilled fields that vie with the factories in producing wealth because their husbandmen supply the market of manufacturing centers with as fine vegetables as can be secured anywhere in the world. Should you care for silverware or cut glass, stop a bit at Meriden and Wallingford. New Haven is a busy, prosperous and growing city, with the double claim to fame that it is both an educational and an industrial community. Still you have not visited Fairfield county with the busy cities of Bridgeport, Norwalk, Stamford, Dan-

bury and scores of smaller communities, all engaged in the same endless variety of manufacturers. You will find Litchfield county not devoid of manufacturing in Torrington and Winsted, but more given to agriculture, and blessed with the finest scenery in Connecticut. Its hills are not so lofty as the more northerly Berkshires, nor do they rise to the grandeur of the White mountains, but its many silvery lakes and rushing rivers give the eye many a delightful vista.

Should you come in sail or motor boat, you will be charmed by the rocky and much indented shores of Connecticut that hold back Long Island sound. From Cos Cob on the southwest to Noank, Mystic and Stonington on the northeast, you will be reminded more than once of Cape Cod's sandy beaches or Maine's rocky promontories. Not by the hundreds but by the thousands you will note beautiful seashore homes where families of means delight to spend the summer term. You will find double the number of more modest cottages of those less well-to-do but who love the seashore. And not insignificant, but rising to a considerable industry measured in dollars, is the oyster, clam and lobster fishing of Connecticut's seashore towns.

We have not forgotten, but we have reserved among our impressions, to speak of Connecticut's influence on the educational interests of the country. Vying in importance with her mechanical and inventive influence is Connecticut's imprint upon the educational forces of the United States. Her public-school system is excellent; and the number of her academies and finishing schools make a brave showing in the list. Her colleges — Trinity in Hartford, Wesleyan in Middletown, and Yale "the Mother of Colleges," in New Haven are among the élite in the family of collegiate institutions, with almost 16,000 living graduates, including the President of the United States, a host of senators and representatives in Congress, many governors, mayors and legislators in every state of the Union. Yale's claim is made good that she "trains men for public service." Theodore Roosevelt, himself an alumnus of Harvard, has said that in every work he ever undertook for a civic or legislative betterment, he always found a Yale man

AROOSTOOK POTATO FIELD IN HARVEST TIME

shoulder to shoulder with him ready to do full share of the work.

If in these few paragraphs we have succeeded, by touching only the high lights in the picture, in giving you a glimmering — an impressionistic pastel — of Connecticut industrially, agriculturally and educationally, you will nod your head in acquiescence when you hear it said that, "Little old Connecticut is a mighty good state to live in and to work in."

MAINE

The Maine label is tacked on to a respectable portion of New England — a division representing approximately one-half of New England's entire land area, or about 30,000 square miles, in round numbers. A subsection of the State is pushed up into that part of British territory known as the Dominion of Canada, for a distance of about 150 miles due north, with a resulting 450 miles or so of border along Maine's northern confines. At the time when Maine was sliced off from Massachusetts, its northern boundary was supposed to be many miles north of that part of the St. John river which now marks its limits. A dispute arose over the matter, which was adjusted in 1846 by Daniel Webster and Lord Ashburton, the boundary line as it is today being established as a compromise. A Montreal newspaper editor, early appreciating the unusually rich natural resources of this section, put out the statement that Canadians need only to get busy with transportation extension at the border in order to "as good as" annex Maine's Aroostook county to Canada for commercial purposes. This county is about the size of the present state of Massachusetts.

It is perhaps but natural that the "newer" or less developed portion of Maine should be touched upon first. The only natural transportation artery of size in northern Maine is the main St. John river. This water takes its rise in the central western part of the State and courses northeasterly for 85 miles, wholly in Maine. Then, for about 80 miles, it denotes the boundary limitations between Maine and the Dominion of

Canada. Its most important tributaries are the Allagash, Fish and Aroostook rivers, although there are many minor tributaries which are of log-floating capacity. In recent years recognized railroad opportunity has resulted in railroad actuality in some portions of this vast and resourceful expanse of northern Maine, augmenting the section's natural transportation facilities, and affording producer and consumer, manufacturer and utilizer, a means for speedy and economical intertraffic.

In 1851 Hon. John Hubbard, then governor of Maine, asserted in his message to the legislature that about all of the best of Aroostook's white pine had been floated down the St. John river to the Bay of Fundy, for the benefit of British subjects. He apparently had an idea that it was possible to arouse New England to the importance of providing direct United States transportation between Maine's inland wealth of timber, water, soil, etc., and the Atlantic; which shows how mistaken a governor could be 59 years ago. And yet Governor Hubbard might reasonably have chafed over the predicament of his State in relation to its lumber output, for from such records as are available one can guess that around sixty billion feet of New England soft-wood logs, representing an immense total of financial equivalent, have been floated out of New England for manufacture in Canada.

In later years the fame of Aroostook county has gone around the world as a record region for the growing of potatoes. Not only can the average yield per acre be made exceptionally large, but the stock is excellent for table use and superlative for seed, especially in the South. Potato culture experts account for this superiority in the fact that in much of the county there is an underlying bed of porous rock, lying usually about two feet below the surface of the earth. This rock contains potash, which is a valuable potato food. Again, the character of the rock is such that it aids to absorb moisture, which in turn is released naturally for the most advantageous use of the growing potato plants. Most of the farmers own plenty of land, and can avoid the use of the same acreage for potatoes oftener than once in three or four years, thus al-

lowing the soil to recuperate in part preparation for further crops. On ridges, in valleys of streams and rivers, and, as a rule, wherever the forests are cleared, the soil deposit is found to be rich and loamy and admirably adapted for easy and profitable agricultural use.

There is no question but that, on the basis of acreage under cultivation, northern Maine in general and Aroostook county in particular hold the world's record for the greatest annual harvest of potatoes. Economical advantages of modern methods in planting, cultivating and harvesting combine with the unusual richness and adaptability of the soil to produce the phenomenal crops of this section. With a potato harvest approximating 15,000,000 bushels, and having a monetary value of around $9,000,000, it is easy enough to see why potato raising "looks good" to the Aroostook farmer, particularly when $6,000,000 of this harvest money is net profit.

Hay, grain and other crops also fare finely in this section. The land for any of these is easily cleared, owing to the favorable nature of the soil and the freedom from rocks, and the expense from seed time to harvest is remarkably modest in comparison with the value of the agricultural returns.

Piscataquis county is rich in lumber and in slate, there being practically no limit to the veins of the latter. Many of these veins furnish slate of superior quality, which finds a ready market at favorable prices. Near and along Maine's coast lies a practically inexhaustable supply of granite of excellent and varied quality — another important source of Maine's wealth which has as yet been drawn upon in comparatively small measure, although granite quarries are fairly numerous. Lime of superior quality is also quarried and marketed. Even the pure spring water, with which Maine is blessed so abundantly, is bottled and marketed through the enterprise of Maine's sons, and is obtainable in all parts of the world.

Maine is phenomenally rich in natural waterpowers, although only a comparatively small percentage of the available sites have as yet been utilized. Northern Maine's lake area covers nearly 2000 square miles. The flow from these

lakes reaches the Atlantic ocean through four great rivers, the Penobscot, Kennebec, Allegash and Fish. The Penobscot has an annual flow of 320,000,000,000 cubic feet of water, the Kennebec contributes 226,000,000,000 cubic feet of water annually, and the others in proportion. To properly harness this immense flow for industrial use would make available a tremendous and economical power, and wise manufacturers are more and more realizing the exceptional opportunities thus offered them in Maine, and are taking advantage of them. Electric power companies are already formed and operating in various sections of the State, and their offerings of ample power at low cost make a strong inducement for new industries to come in and settle.

Some one has aptly termed Maine the nation's great natural playground and health resort. This is certainly no misnomer, for the attractions and advantages of the Maine open seasons for health and pleasure seekers are attested at every turn — at the seashore, along the rivers and streams, by the ponds and lakes, and at the mountains. Each summer finds, more and more, thousands of vacationists attracted to Maine by life at the shore, or in or near the forests, and each season the enlarging of summer hotels and lodges, or the erection of new ones, furnish proof in plenty that the summer army of Maine invasionists is constantly increasing.

The cities and towns of Maine are, as a rule, beautifully built and neatly kept. The modernizing spirit is prevalent, but not to the detriment of natural beauties or the undoing of conditions which have made and kept Maine so widely popular as a pleasant, comfortable place to live in all the year round. The charities of the people are many; their hospitalities are famous; the standards of the majority are high. Maine's far-famed prohibitory law has served a useful purpose. The people of those states which are without it use it as a means of turning attention from their own shortcomings. Sundry Maine ites have brought this law into disagreeable prominence through their inability to discover why it does not always work to suit them, while there are some extremists who declare the people and not the law ought to be changed. No Maine politician would be

without the state prohibitory law; it comes in handy now and again for the clergy; when conversation lags, it offers a convenient and ever-ready topic for the native as well as "the stranger in our midst," and thus becomes socially too important to be lightly set aside.

The state of Maine is too large in area, too diversified in resources, too active with producing, manufacturing and marketing its goods, and too busy dodging visiting automobiles to take much of an account of itself as a whole, off the reel. Readers of this sketch may have learned something from it about Maine that is new to them, but to get at the whole story, in the best way, they had better drop around to Maine at their earliest convenience and take a good look at it. The invitation is perpetually extended; the latchstring is always out; a cordial, hospitable welcome awaits everyone who comes.

VERMONT

A scoffer has said that when God finished making America he dumped the waste material all in one place near the Canada line and called the place Vermont. It is true that God made Vermont last of all and the proof lies in his handiwork. It was easy to spread out the broad prairies; it was easy to pile mountains one on top of another; it was easy to build the rugged coast line and smooth out the sandy beaches: but it required a master builder, a workman of high ideals and faultless execution, to draw so unstintingly from the best in creation and from it all prepare that little area which among those who know is regarded as the keystone in the arch of God's world-building triumph.

We would not seem sacrilegious, but Vermont must have been God's hobby. He made it His art gallery and His natural mu[illegible]m. He filled it with perfected working models of the finest th[illegible]gs in nature, and decorated it with scenes which painters vainly have sought to copy. Vermont has no grand cañon; ut i[illegible]as scores of miniature reproductions rivaling the grand ca[illegible]on in beauty if not in grandeur. It has no boundless ex-

panse of prairie; but its fertile fields and meadows respond as readily to the needs of man. It has no Niagara; yet its hundreds of waterfalls rival Niagara in the beauty and genius of their creation. It has no sky-splitting, snow-capped summits; yet its accessible and ever-verdant mountain peaks afford a charm unparalleled. The grand cañon, the prairie, Niagara and the Rockies, impress the visitor with his own insignificance, while their miniature reproductions in Vermont exhilarate him and seem to congratulate him upon his presence. One may worship the awe inspiring, but he loves the beautiful.

Some day a literary genius acting under the inspiration of his environment will draw a pen picture of Vermont which may do the State justice. Many have tried it, and have succeeded in drawing pretty pen pictures; but they were not pictures of Vermont — they simply represented one of the details of Vermont beauty. Henry Ward Beecher shunned the attempt at description, and said, "Vermont contains the most beautiful scenic effects within my memory." A tour of Vermont unfolds to the enraptured eye a never-ceasing panorama of landscape and foliage preserved in memory alone. It is beyond the realm of pen or camera. Many of the world's natural wonders hold the visitor spellbound because of their magnitude and grandeur; but a Vermont landscape holds the attention solely by reason of its merit as a thing of beauty. No one is riveted to the spot — he stays as a matter of choice. Whoever made Vermont was a connoisseur of landscape; as well of its lines, curves, and angles, as of its diversity. He took some pride in his work.

To argue that Vermont is the very best state in the country it will be necessary to resort to comparisons. It must be conceded that Vermont excels all others in the beauty of its setting. It ought to be conceded that Vermont excels as the abiding place of man — in supplying those prime necessities, food, shelter and recreation. When God finished making America He found He had inadvertently made a few omissions. When He piled high the rugged mountains He neglected the food supply, and when He spread out the fertile plains He omitted a means of shelter. In making Vermont He took ad-

vantage of His experience and made ample provision for every want of man. That is why we know He made Vermont last, and that is why those who know speak of Vermont as being God's own country.

Vermont was once a republic, independent of every other power, and it might well have remained so, for it was not dependent upon any other territory for its existence. Nature had provided scores of fertile river valleys and productive hillsides from which to feed its people. Its soil and climate have never failed to bring forth a seedtime and a harvest, and every crop necessary for the maintenance of its people can be raised within its own area. The staples are grown throughout the State; hundreds of acres in the Connecticut river valley are devoted to the culture of tobacco, and hundreds of acres in the Champlain valley are devoted to the culture of apples which in taste and texture equal like productions from any other part of the world. Alfalfa is being introduced in many parts of the State with flattering results. The finer fruits and shrubs are grown in many parts of the State for pastime rather than profit, but they show the versatility of Vermont soil.

Vermont has no corn belt, no mammoth wheat fields, no orange groves and no ranches, yet any other state in the Union might well envy it for the diversity of lines in which it excels. It leads the world in the production of maple sugar. The government has recognized the qualities of the Vermont Morgan horse and has established a stock farm in Vermont for the purpose of perpetuating this species of equine excellence. Australia and the South American republics look to Vermont for that other Vermont thoroughbred, the Merino sheep, and hundreds of shipments have been made at prices which stagger the ordinary sheep producer. Vermont has more head of cattle than can be found in any of the so-called great cattle producing states of the country, and can count more dairy cows on a given area than any other state. Better than all this, Vermont dairy products sell at a premium in every important market in the East.

The story of Vermont's success as an agricultural state but

SUMMIT HOUSE, MT. MANSFIELD, VERMONT

half tells the story of its achievements. Other states have so exploited their advantages that they seem to have left Vermont far behind in the race for commercial prestige; yet the fact remains that Vermont has built up the greatest marble industry in the world, and many of the most beautiful buildings in America bear witness to the quality of Vermont marble. Vermont also holds the key to the slate situation in America, its quarries and works ranking with the best the country affords. In the production and manufacture of granite, Vermont so far outranks the rest of the country as to stand almost alone in the industry, having both the largest quarries and the largest polishing works. As if it were not enough that Vermont should lead the world in the production of fireproof building material in its marble, slate and granite, prospectors have now uncovered what gives every promise of being the greatest asbestos producing mines in the world. Expert geologists affirm that Vermont has a vein of asbestos-bearing rock which is a continuation of, but which excels, the famous Black Lake and Thetford veins in Canada. Vermont asbestos mines are now being operated on a paying basis. They have become realities rather than speculative possibilities.

The foregoing industries owe their success in a measure to their proximity to the source of supply. In each case Vermont produces the raw material. But Vermont success is not dependent upon producing its own raw material, as is shown by the fact that Vermont leads the world in the production of scales. Vermont has the largest veneer factory in the world, as well as the largest factory for the manufacture of overalls, frocks and jumpers. Every factory in Vermont for the manufacture of cotton and woolen goods has been a financial success.

Now attend! You who have come to believe that Vermont produces nothing but whiskers and hayseed, read this: Besides leading the world in marble, slate, granite, scales, veneer, overalls, maple sugar, Morgan horses, Merino sheep and dairy cows — besides all these, a recent edition of *Who's Who* shows that Vermont has produced, per capita, more men who have made good in other states than any state in the Union. By many people outside the State the word "Vermont" has been

used to convey the idea of a backwoods country, as illiterate as it was uncouth. Vermont alone must bear the blame for this erroneous impression, for during all these years of her development she has been hiding her light under a bushel, while other states and communities have been making a diligent and systematic bid for more fame and more business. It never was characteristic of Vermonters to rush in where angels fear to tread, but there are signs and symptoms that Vermont is near the dawn of a new commercial era. Ex-Governor Prouty was elected as an exponent of the "New Vermont." Governor Mead is in full sympathy with the movement, and the press of the State is taking up the cause. Vermont soon may be expected to make the most of her unparalleled advantages and reap the reward which will come from the development of her innumerable granite quarries, waterpower privileges, asbestos mines and from the scientific cultivation of her soil. The greater portion of the State's population was reared within its borders, and but few of them realize the vast possibilities awaiting profitable development. Familiarity seems to have bred contempt; and some day not far distant the people of the State will awake to the fact that these advantages have slipped away from them and have come under the control and have enriched outside capitalists who had enough nerve to back their own judgment. If any other state possessed such advantages they would have been capitalized long ago, and the stock could have been sold in Vermont.

Here is a little state of comparatively few square miles in area, equidistant from Portland, Boston, New York and Montreal traversed by two great transcontinental lines of railroad and with splendid local and New England connections, leading the world in many industries and pursuits, and yet its great natural resources are but partially developed. Why? Simply because Vermont's great possibilities are unknown outside the State — simply because Vermont has acted upon the erroneous theory that the better an article is the less it need be advertised. Vermont stands in the position of the trader who has a superior article of commerce but who sees the trade follow an inferior but more widely advertised counterfeit.

Vermont has the goods, both in quantity and quality, but she needs more of that antidote for commercial stagnation — publicity.

NEW HAMPSHIRE

New Hampshire has always held a prominent place industrially among the New England states, but there seems now as never before to be a full awakening to its great potential wealth. Four of the most important rivers in New England have their rise in the White Mountain region of New Hampshire, and these, with innumerable other smaller rivers, each of considerable importance, provide almost unlimited waterpowers. While these waterpowers have been utilized to some extent for years for manufacturing purposes, it is now recognized that their full utilization means the production of power sufficient for a multitude of industries, to run the transportation systems of the State, and furnish electric lights for its cities and towns. Just as the residues and by-products of many industrial processes that were once thrown away have been found to contain some useful substance or potency, the value of which in some instances exceeds that of the primary product itself, so in natural resources we find that there is untold wealth in power and opportunity going to waste every day all about us. Many of these power sites in New Hampshire have been purchased, and plans are under way for their development; there are still abundant opportunities for other enterprises of this nature, and nowhere is the prospect of reward greater. The full development of New Hampshire's waterpowers will change the whole character of many sections of the State. The utilization of these forces for industrial purposes means the building of large towns and cities along the rivers, thus making good markets for the products of the farms in these valleys, increasing land values, and bringing prosperity and new life to the farmers.

The forests by proper operation and reforestation will furnish material for the present use and normal growth of all the lumbering and wood-working industries of the State. Our

specialists in forestry, power production, mill operation and agriculture can engineer the utilization of all these natural products and resources without marring to any appreciable degree the esthetic value of the natural scenery, which has always been one of the greatest assets of New Hampshire.

The mighty Merrimac, as we learned to say in school, "turns more spindles than any other river in the world," and on its banks is the largest cotton-manufacturing plant in the world, besides many other industries; and then it flows on for further usefulness in another state. Along its valley is some of the finest farming land to be found anywhere, and ample market for produce is near at hand in the cities and villages along its banks. Here in the Merrimac valley originated the famous Baldwin apple, one of the best known and best liked varieties. Millions of gallons of milk is produced yearly in this valley and shipped to Boston and other cities. Throughout the State are broad acres of rich farm land, and over ninety percent of its farms are operated by owners. There is abundant grazing land not utilized, although more attention is being paid each year to stock raising. In the list of manufactured products cotton goods lead. Woolen goods, hosiery and other knit goods and textiles are also important. New Hampshire is one of the important states in the production of paper and wood pulp. Lumber and timber products, foundry and machine shop products, cars, locomotives, fire engines, granite, slate, marble, mica and a multitude of other products are turned out in abundance.

New Hampshire is perhaps better and more widely known on account of the scenery of the White mountains, for to none of the eastern states has nature been more generous in this respect than to the Granite State. Aptly has it been called the Switzerland of America, for here is to be found some of the most famous scenic beauty in the world. Here gather the men and women from all walks of life, seeking pleasure in the beauty of the woods and mountains, recreation in the games, climbing and fishing, and health in the green pharmacy of nature. It is a resting-place for the millions, as well as for

the millionaire. Its summer hostelries range from the million-and-a-half-dollar palace hotel, with its kings of finance and captains of industry and their richly-gowned ladies, to the less pretentious farm boarding-houses where the moderate-salaried city worker can find rest from toil and heat and enjoy all the beauties of the scenery. In the more than 400 square miles of mountains there are over twenty-five peaks over 2,500 feet in altitude, and over fifteen that are over 4,000 feet. Mt. Washington, the highest and chief among the Presidential range, rears its summit to an altitude of 6,290 feet, with all the stern and stately grandeur of the illustrious American for whom it was named. Within the hundred-mile radius of prospect from its summit can be seen the ocean, Lake Winnepesaukee, Sebago and the Rangeley lakes, as well as innumerable other smaller ones, in Maine, Vermont and Canada. Only a few hours' ride — and all the way by rail — from New England's metropolis is this cool retreat where one may watch the sunset from a point more than a mile above the tallest office building, eat lunch at the Tip Top house, and read the newspaper published up there above the clouds. Within a twenty hours' ride there are twenty-five millions of people. This is indeed the vacation land preëminent in all the world. This region abounds in legendary lore and stories of the adventures and hardships of the early pioneers; all this adds to its charm for the summer visitor seeking rest from the money-mad moil of the city. To the lover of mountain climbing the interminable miles of trails, well defined and kept up by the Appalachian Mountain club, offer all that can be desired, and wonderful worlds await the vision of those who undertake these arduous tramps. Over 2,000,000 acres of forests, with picturesque waterfalls and sparkling streams where abound the immaculate brook trout, furnish unexcelled opportunities for the khaki-suited tramper to breathe the delicious fragrance of the pine and balsam, listen to the joyous music of the feathered minstrels, dine on the choicest piscatorial delicacies, and sleep on a bed of scented fir boughs under the "big tent" — a régime that will round off the corners of the human disposition and make life seem worth while. The grandeur of this mountain region is peren-

THE MAIN STREET IN A NEW HAMPSHIRE VILLAGE

nial, and winter sees many sleighing and snow-shoeing parties at the hotels which keep open during the winter or open for these special occasions. The mountains, rivers and brooks of this region have furnished their full quota of inspiration for artists and poets, and are immortalized in many a sketch and song. The sunsets from Intervale are famous all over the world. Indeed, so charming is this State to men of artistic and literary temperament that it has won no little fame for having been chosen as a permanent home by St. Gaudens, Churchill, Parrish, and a great coterie of authors and artists. The shoemaker hangs out a shoe, and the jeweler a watch, over the door of his shop to indicate what is made there. Way up in New Hampshire God hung a gigantic stone man high on a mountain side, to indicate that there He makes men. The early pioneers from their first landing on the "Strawberry Banks" were forced to provide for all the necessities of life, and from this schooling in resourcefulness and self-dependence, aided by the vigorous climate, has grown the sturdy character of the people. New Hampshire has furnished a president, a vice-president, cabinet officials, journalists, and men of prominence and sterling worth in every walk of life, and a statesman and orator of world-wide renown and undying fame. New Hampshire is not lacking in educational institutions. Dartmouth college needs no eulogy — its graduates are living eulogies, and are scattered all over the world. Two of its preparatory schools draw many of their pupils from distant states. Its public schools and its many other private preparatory schools are of high standing.

Thus we see that Nature has spared no pains in showing her handiwork in scenic splendor and has provided the elements and surroundings for restoration of the ill and rest and recreation for the overworked, as well as the many sports for the vigorous. All this mountain and forest region has been turned to economic usefulness as well in providing a source of abundant waterpowers for manufacturing and the fertile farm lands in the valleys. With all these natural endowments, the people have developed a strong character for industry and enterprise that has made them a force in the commercial and intel-

lectual world, and stimulated them to found institutions and to train their sons and daughters to important usefulness.

RHODE ISLAND

It has been said — and it is probably true — that no similar area in the United States is as diversified as is Rhode Island, in landscape and contour, in foliage, in flora and fauna and in geological formation. From these facts it has come to pass that no state in the Union possesses greater diversity of opportunities for summer pastimes and recreation. Variety indeed appears to be the most striking characteristic of the smallest of all the states. Its industries, its institutions and its people are astonishingly varied. Its opinions, its occupations and all the manifestations of its existence have been unusual and individual, through the years of history. "Of all the American states," writes James Bryce, "Rhode Island is that one that best deserves the study of the philosophic historian." Rhode Island is milder and less variable in climate than the other New England states, although there is considerable difference between the northern and southern portions, and as a consequence, much of the wild foliage is of a distinctively southern type not elsewhere found in New England. Here however it grows beside the characteristic foliage of the North, some of which finds its southern limit in Rhode Island. There is a splendid assortment of the beautiful things of nature: broad glistening beaches, and wild, wooded hills, rocky cliffs overhanging the ocean, hundreds of miles of bay shores, winding, rushing rivers and dense tangled forests where the advent of man is as yet scarcely known. There are many lakes and there are barren sand dunes; there are exquisite and fashionable summer places that vie with any in the Old World, and there are secluded camps where Nature is untroubled in her luxuriance. Although Rhode Island is growing in density of population faster than any other state in the Union, she nevertheless has a larger proportion of wooded area than any other, and almost within sight of her bustling cities there are trails

through the tanglewood that have survived in much of their primitive wilderness since the days when the red men made them. There are quaint hamlets, lovely farms, and everything that is oldest and newest in our civilization. There are splendid modern roads that give ready access to every part of the State and the two adjoining states.

Narragansett Bay, the chief asset of picturesque as well as commercial interest in the State, is about thirty miles long and from two to twelve miles wide. Its shores are extremely varied and deeply indented by a multitude of small bays and harbors. The three main entrances are deep and direct, yet well protected from the ocean by the two larger islands — Aquidneck, upon which Newport is situated, and Conanicut, upon which is Jamestown. There are miles upon miles of shores bordered by beautiful summer estates, and fine old towns snugly tucked away behind the long headlands. The chief rivers of the State are the Blackstone, the Pawtuxet, the Wood, the Usquepaug, the Queens, and the Pawcatuck. They form a network of waterways by which with slight " carries " the State may be traveled in many directions with as much fascination to the canoeist as may the wilds of Maine or Ontario. It is not to be wondered at that there are world-famous summer clubs upon the bay shore; that yachts abound on Narragansett's waters; that canoeing and rowing and salt-water bathing seem to be a second nature to most Rhode Islanders. Nor is it to be wondered at that Rhode Island's skill in naval designing has produced the great cup defenders that have held supremacy against all foreign challenge.

Newport, the " Queen of watering places," is famous for many things. It is the most fashionable resort in America. The " cottages " or villas of its summer residents are magnificent. Its cliffs and its beaches, its superb ocean drive and its stately shaded avenues are known throughout the world. Its history is full of incident and charm. One of the greatest of naval stations is located there, and it is an army post of importance. Fort Adams at the entrance of the harbor is one of the strongest defenses in the United States, and the power

of the government is also represented here by the United States Naval War College, the Government Training Station and Torpedo Station, the Naval Hospital, and other extensive enterprises. The "war games" of military and naval forces are exceedingly interesting features of its summer life. Narragansett Pier is only a little less famous than Newport. It is celebrated for its great hotels, its superb bathing beach, its splendid summer residences, and the varied assortment of delightful drives. It is indeed one of the most fashionable resorts of the East. The outlook is directly upon the ocean at the mouth of the west passage of Narragansett bay. A fine promenade extends along the rocks south of the old "Pier," and a famous drive leads to a rocky corner of the State at Point Judith. Watch Hill is another celebrated hotel and cottage resort. It has a fine ocean beach and still waters for bathing and sailing, and it guards the western entrance of Long Island sound. Very different from any of these places is Block Island, the "Isle of Manisees." This is a barren, wind-swept isle, far out to sea; very undulating in its surface, with a multitude of fresh-water ponds in the deep hollows between its rolling hills. On the south shore are majestic cliffs that are forever washing away and bringing great sand bars around to the northern end of the island. There are numerous hotels, a splendid bathing beach, and some pleasant drives. A hardy race of mariners inhabit the island, and although the business of catering to summer guests is preëminent the fisheries are of much importance.

Of all the states in America, Rhode Island perhaps is the most entitled to look back over its record with unalloyed satisfaction. With honor and justice it began its career. With fearless loyalty and dignity it has continued its existence. Its name is writ large in American history. The principles of liberty that now guide our government are the ones set forth by its founder. The stirring events that preceded the formation of the Union took place within its borders. It struck the first successful blow for freedom, when the citizens of Providence captured the *Gaspee* in June, 1772. It was first among the colonies to protest publicly against taxation without

representation, and sent representatives to England for the purpose. Providence was the scene of the first colonial declaration of independence, and two months before the delegates of the various colonies met at Philadelphia to declare their separation from the mother country the legislature of Rhode Island met at the old state house in Providence and formally declared Rhode Island to be a sovereign and independent state. It was the first to recognize religious liberty, and to try in a practical way the great experiment of separatory church and state.

But the victories of Rhode Island have been those of peace more notably than those of war. The guiding principles of Rhode Island have become the principles of our nation, and our civilization is fast becoming the inspiration and power of the world. Rhode Islanders are in reality industrious and frugal, and they have more individual savings bank deposits than any equal number of people in any other state. Rhode Island contains one of the most prosperous industrial districts in the United States, and it has been estimated that one-twentieth of all the wealth in the country is within fifty miles of Providence. The census shows that the factories in this district have been increasing at the rate of about one a week for the past few years. This district is known for the variety of its products and the skilled workmanship of its artisans. Preëminent among its varied industries is the manufacture of jewelry with its allied interests. Providence contains the largest silverware establishment and the largest mechanical tool manufactory in the world, and the product of its workers in silver is greater than that of any other state in the country. The Providence district is the greatest textile center in the country. It has no near competitor in the world in the manufacture of screws and files. It is a large producer of foundry and machine shop products and rubber goods, and leads in the dyeing and finishing of textiles. Being surrounded by the greatest cotton and woolen manufacturing district in America it has become one of the greatest cotton and wool markets, as well as the national headquarters for the supplying of textile machinery, metal mill supplies, and for the

planning and insuring of mills. This district in 1900 was sixth among the industrial centers for capital invested and wage-earners employed, and fifth in the annual amount of wages paid; $143,000,000 of products were being annually produced in factories which had a capital of $140,000,000 and paid $31,687,953 to their 75,000 employes. According to the census its manufactures have increased more rapidly than those of any other state. The factory inspector's report for January 1, 1908, shows that the number of employes in the leading industries had advanced from 60,858 in 1897 to

CAMPBELL AVENUE BRIDGE, WEST HAVEN, CONN., ON N. Y., N. H. & H. RAILROAD

137,000 in 1907, a net gain of more than 125 percent in ten years. This extraordinary record is verified by the result of the special industrial census taken under the authority of the Rhode Island Bureau of Industrial Statistics, and relating to sixteen leading industries. It was found that in two years the invested capital had grown more than twelve percent, and the value of products nearly thirty-two percent:

the number of wage-earners had increased eighteen and one-half percent, while the total wages earned had increased almost thirty percent.

The commercial importance of this southern gateway of New England is by no means insignificant. When the dredging now in progress by the national government is finished its inner harbor will have a uniform depth of twenty-five feet, over an anchorage area of 171 acres. Further plans by the government contemplate straightening and widening the main channel at a cost of about $1,000,000; and the city of Providence proposes to expend $450,000 and to donate certain land that obstructs a more direct approach to the wharves. The State has voted half a million dollars for public docks. The New York, New Haven & Hartford railroad, which has invested many millions of dollars in Providence during the past few years, and has just built a new bridge and tunnel at a cost of about $2,000,000, is planning to spend about $2,000,000 more on improved docking facilities near India Point. The Grand Trunk terminal will undoubtedly include docks for ocean steamers as a part of its equipment. This great transcontinental railroad will provide direct connection with the Connecticut valley, Vermont and Montreal, the Lake region, the great fields of the Canadian northwest, and the Pacific Ocean.

Rhode Island stands high educationally and socially. Brown University, the Rhode Island School of Design, the Annmary Museum, and other famous libraries, galleries and museums, all splendid of their kind, and all conducted on broad and generous principles, rank high among the educational and artistic institutions of the country. There are a great many private art collections in Providence that are among the most notable in the world. Its yacht and outing clubs are numerous, and some of them among the most elaborate in the country. Rhode Island with its great industries and supremacy of manufacturing life has kept pace with the world, in its ideals of culture and education, and furnishes ample opportunity for the enterprise of its citizens, their education and culture, and invigorating sports and charming recreations.

Potential New England

The New Englander with imagination, and a fair knowledge of conditions as they exist and the reasonable promises for the future, may project upon the screen of his belief and hope a sharp and truthful picture of the New England of the next generation; or it may be the New England of the second generation hence, or even the New England of the next decade. When the New England his reason tells him is coming will arrive he cannot predict. He sees the present, but the future is something to hope for and to realize through faith and imagination. This imaginative New Englander, who is trying to persuade himself that the great future for his beloved states is really materializing, thinks of many things before he permits himself to indulge in ecstatic joys of justified hope. He carefully canvasses the probabilities, and he has done as much as that many times since he began to see visions of New England's future; he goes over in his mind the facts he has seen and learned during these past few years of the parturition of the new spirit of progress; he tries to correlate those facts with the disposition for progress he has noted, and nursed, in the breasts of the native New Englanders, and the smashing resolve to get on he has seen develop in the lives of the new men who have come to us from over the seas; he searches his own consciousness for signs of the working of a common motive, and he considers whether the passion that burns him is a part of a common passion, or is in any way indicative of a common passion; he draws his mental vision within the range of his personal knowledge, and scans his neighbors, as they may have revealed themselves to him during the past few years; he departs from this psychological field and begins to pass general conditions as they have changed in recent years before his horoscope and through the filter of his mind, recalling changing market conditions, the upward trend of

prices, the enlarged demand for manufactured goods and for the products of the land, the new methods of transportation, the wonderfully enlarged economies in business, the revolutionary changes in the methods of working the land, the vastly increased personal demands for luxuries and conveniences, and above all the tremendous power of that new spirit in business that seems to wrest from their raw potentialities fortunes whose existence had previously been little more than suspected. Gradually there comes upon this New Englander's mind-screen a picture, sharp and distinct and vivid, of the New England that is coming, that has begun to arrive, and he is able to define and formulate his hope, and describe that which he finds has been accomplished.

First in importance, it may be, in thinking about the future of New England, stands the great racial fact that the progress of the Pilgrims westward has been checked by the Pacific ocean. Were it not for this physical barrier it is conceivable that the Pilgrim and his seed would go marching on into the west until the Day of Judgment. And as it is, the Pacific has not absolutely dammed the westward flow of the Pilgrims. It has however checked it, and turned back a large proportion of the throng. With the Pacific in front some other direction must be chosen for the march. By this time, too, New England had become a mythical far country to those men who had carried progress to the western verge of the land, and had therefore become a lure for the pilgrim fated to carry the flag of progress; and there was the motive of the crusader — the need of the people in this far northeastern country of grandfather tales and vague father memories. That people needed the stimulus of the enterprise to which the men who had developed the West had been bred. And back there in New England, opportunity awaited. So the minds of men who have the making of the world heavy upon their consciousnesses turned toward New England, and they are with us now, in person and in motive and method. Here is one of the significant facts that is operative in the renaissance of New England: That the men of action and pioneer spirit are coming back to us, and that we are welcoming both the men and their spirit.

Perhaps the most notable among the large farming enterprises that have recently sprung up in New England is managed by a Texan; and one of the more significant facts in connection with the reclamation of farms in New England that have been "abandoned" and sold is that a large proportion of the purchasers come from beyond the Mississippi and from beyond the Atlantic. Of the instances of the creation of fine summer residences in the scenic regions of New England by men from other states it is noted that many of them come from the western states. Those men who come to New England to work the land come because we have here the market for their produce; because the saving in transportation costs amounts to a generous profit; because they estimate the opportunity of studying the markets at close range and the chance to respond to their demands, as equivalent to a considerable margin of profit; because of the variety of produce they may raise and sell; and because the variegated soils of New England offer the man of enterprise a variegated opportunity, as they will respond to the modern methods of treatment and fertilization more readily and surely than do the more uniform and artificial soils of the great bottoms of the West. When a sheep raiser in Vermont can show a 5 percent profit on $4000 as the result of an investment of about $800, it is not competent for the critic of New England to claim that sheep must be raised in Ohio, Montana, or Texas. Or when a man can take an old apple orchard and spend $1000 or $1500 in doctoring it into a condition of health and then take earnings from it equivalent to legal interest on $300,000, it is not necessary to claim that apples must be grown in Missouri, Kansas, Colorado, or in the wonderful Hood River valley in Oregon. The Pilgrims who have been halted on the Pacific shore know these facts, and they have suddenly realized what they mean — that their fathers and grandfathers left the real Eldorado on the far shores of the Atlantic; and they are coming back to help us and inspire us, and it may be to shame us a little. The significance of this return of the native is not perceived in the mere fact that some hundreds or thousands of men of New England lineage and stock are

coming back to its acres, but that their coming back evidences the fact that there is in our people the idea that times have changed, and that a new order of industry is coming into general acceptance in America. We have gone over much of our land and sucked the virtue out of its surface. We have been cropping the land; now we must cultivate it. As this is a different proposition, it has led to a new canvass of conditions. If farming must be intensive, why should not the farmer practice those methods where he can touch elbows with three-quarters of the markets of America? And why should not the farmer come once again within the influence of the most intense zone of American civilization?

In a large sense, some of the basic considerations that are drawing us to the land of New England with a new comprehension of the opportunities it offers to us are racial, some are social, and some are economic. The same motives are also operating in favor of manufacturing, with the added element involving the character and availability of help. But the return to the land, and the new appraisement of the land which has become possible because of the new knowledge and the expansion of the markets, is the most significant hope that we have for an enlarged future for New England. We look for the doubling of the products of the land in the very near future, and we believe that that which has been said of agriculture in the preceding pages of this book justifies that hope. The course of events justifies it also, since the rate of increase leading to it has been inaugurated, and we may say that we realize that we are fairly on the road. But while we are justified in expecting that our agricultural output may be doubled, let us not set that limit for the possible increase. It should be doubled with very little effort, with the application of a very little of the knowledge that we now have at our disposal. The agricultural and horticultural product of New England should be increased tenfold, and then we might fairly flatter ourselves that we had begun substantial progress. We would really have done little more than made appreciable progress toward the possible maximum of product from the land of New England. Suppose, just for a moment,

that we let our imagination take a flight, only as far as the leash of reason will allow. Take apples: Do we raise more than 1 percent as many apples as we might, if all the good apple land were utilized properly, and all the orchards properly cultivated and cared for? Surely we do not. And the apples we do raise are not properly marketed. Where can a box of New England apples be purchased that is graded and packed equal to the apples we pay three or four prices for that come to us from the other side of the continent? Such a box cannot be bought in any market in New England. Why not? The answer to this question is the answer to all questions concerning the industries of New England that are not developed up to near 100 percent.

This New Englander, with imagination indulging in a vision, sees the streams of New England utilized; dams at intervals across them, and power houses located where they can furnish electricity for the lighting of the towns and cities, and for power for the factories that must be located where help and transportation are available. Here is a solution of the great coal question. It is entirely practicable, even now, to light and heat houses with electricity, and for the housewife to do all her cooking with that fluid. That such a condition is not now in existence is due to the lack of courage on the part of our capitalists. The waterpower we have, and it is running to waste, carrying with it down to the sea riches greater than those yielded by any gold mine in the world — riches that cannot be consumed, only used in passing. The water is just as good water, for any purpose, after it has turned a turbine as before. Nothing is taken from it; it need not be corrupted in the slightest degree. The water that supplies towns and cities may as well turn power turbines as go idly in conduits to the consumers. This truth is making its impression upon capitalists and economists, and there are many indications that the coming decade will see substantial progress toward some utilization of the power the good God furnishes so prodigally. The signs are multiplying of a great revival in the manufacturing in New England, and they show that these streams and waterpowers are to be made to produce for the region so much

additional wealth as to put New England supremely in the lead. Where now we admire the river rushing down series of rapids, we are to see fine factories; and where we poetize by the side of the purling brook, or whip its surface for the traditional trout, we are to see the small power house within which is generated the electricity needed to light the near-by town, to operate the creamery that converts the farmers' milk into but-

WITHIN EIGHT MILES OF MASSACHUSETTS STATE HOUSE

ter, and even the little plant that makes the light and power needed by the progressive farmer. These things we are to see. They are not mere dreams, even dreams with some probability for their motives — they are on the way, and some of them have arrived — the advance guard of an industrial revolution the extent of which we of staid and unimaginative New England scarcely yet dare to receive with the hospitality of reality. To become assured that this view is not overwrought but within the limits of the coldest of business judgment, it is only neces-

sary to review in the mind the great waterpower projects that are now either being built or in advanced stage of preparation. Some of these projects are so large as to promise great revolutionary changes for the entire region they affect, as well as very great advantage for the manufacturing they will furnish power for. The projects that are to utilize the power of the upper Connecticut river and the Deerfield river will inevitably modify strongly several considerable towns, and make such changes in municipal and business matters as will inure very considerably to the benefit of large areas of country. They will as a matter of fact recreate a number of communities which are now, and for many years have been, somnolent, to apply to them the most mild descriptive term consistent with a fair regard for exactness and truth; and they will transform the lives and enhance the fortune of a great body of New England people. That the prime motive of the promoters of some of these enterprises is business gain must not be allowed to blind us to the very great economic value of their work, nor persuade us to deny to them credit for the important work in the building of New England they are doing. A typical example may be mentioned:

Plans have recently been consummated for the complete development of one of the small mountain streams of southern Vermont. In the high plateau in which this stream rises a huge reservoir (larger than most of the irrigation reservoirs built by the national government in the far West) will be constructed. This will impound the entire flow of the stream, saving all of the flood waters of spring and giving an absolutely uniform flow throughout the year. From this reservoir, by means of canals and tunnels, the water will be carried along the side of the mountain for a distance of ten miles until it is finally returned to the stream under a working head of 1000 feet. It is estimated that this one development will deliver in central New England 75,000 electric horsepower, and because of the huge storage basin, the power thus developed will be continuous and will not be liable to interruption through the floods of spring or the droughts of summer. With the waterpowers of northern New England made economically available

in the form of electric energy, delivered to the great industrial centers of the southern and central section, it is by no means unlikely that the next ten years will see hydro-electric power used in every large city of New England.

This means that this little inconsequent New England stream which has been of no particular benefit to anybody except the fishermen, is to be made to earn something like $4,000,000 per annum, when its potential power is harnessed and sold; and all of its water will be returned to its channel, wholly undamaged, so far as its quality and quantity are concerned, through being used to generate power. Consider that this is but one of the minor possibilities for power from unused streams. There is one river in Maine that will yield 200,000 additional horsepower whenever it is harnessed. This will mean something like $12,000,000 added to the explicit wealth of the State, every year. Compute the other possibilities of the same character, and then try and realize what the unused waterpower in New England means as a definite asset.

One of the most hopeful signs for New England, and certainly one of the chief grounds for expecting the potential New England to develop rapidly, is found in the purposes and attitude of the many business bodies which are now studying the problem. Nothing is more indicative than this. The boards of trade and chambers of commerce in the live New England cities are doing work that has never before been done by commercial bodies anywhere. This work is led, and, in a broad sense, formulated, by the Boston Chamber of Commerce. This great civic body is led by men who do not shrink from attacking any problem that promises ultimate benefit to New England, and they now have plans in hand which will result in pushing New England far along toward the potential goal it is destined for. Its work is a guaranty that whoever imagines a New England of the future that shall fulfill all the logical hopes engendered by full knowledge of the conditions now being revealed shall be known as a prophet rather than a dreamer. Organized with its present scope so short a time that there is but little of its broad program yet accomplished, it is destined to make a wide and permanent mark

upon the industrial history of New England. And it is not so much to credit this civic body with the work it has in hand as to suggest that that work results from an aroused and informed public sentiment in New England with respect to New England. This great and potent body of business men working in a very broad and liberal spirit for the public good would have been impossible at any stage in the history of New England prior to the immediate present. That it has proved to be possible now is all the evidence that is needed that there is a better and more progressive spirit abroad in these six states, and that it is ready to undertake the most progressive, even the most daring, work for the betterment of business and business conditions.

But it is not to be assumed that this new spirit, expressed by the organization and the work of the Boston Chamber of Commerce, and several other similarly active and progressive business organizations in other New England cities, is partaken of by the people of New England generally. It is meet that in making this appraisal of the prospects and opportunities of New England there should be an honest attempt to arrive at the truth. Self examination does not consist in looking upon only one side of the shield. We are not disposed to deny the facts and elements that have made for our retarded development, and that still make for hesitancy rather than progress. Whoever attempts to estimate the future of industrial New England comes to the inevitable conclusion that it is the people that must finally be dealt with. It is becoming increasingly evident that they have now fully decided to go forward, and that so far as the will and disposition of the more enlightened among them is concerned the question has become one of directing the forward movement rather than inciting to it. While it is necessary to give full recognition to the traditional attitude of the people, and to gauge the significance of whatever advance we may perceive with that always in full view, the fact that there is forward movement definitely noted is of very great importance. It is a characteristic of New England that when an advance is recognized as desirable it is made in a manner that atones for all the slowness and hesitancy of initiative.

There were many cities in the West and Northwest, and a considerable number in the South, that had adopted the new policy of promoting growth through publicity methods before any town or city in New England evinced much interest in it. But when the thrill did attack the New England imagination action was characteristically vigorous and efficient; and the result was the wonderful group of civic-business organizations typified by the Boston Chamber of Commerce, the Boston-1915 movement, the Pilgrim Publicity Association, the Springfield, Worcester, Providence, Pittsfield, Lowell, Fitchburg, New Bedford, and several other organizations, which have already rendered their cities inestimable services.

There is a very great awakening with respect to the manufacturing opportunities. What those opportunities are esteemed to be has been shown elsewhere. Potential New England is concerned with the fact that they are being utilized, and at such a rate as gives adequate promise that the supremacy of this region in its distinctive lines of manufacturing is not likely to be successfully challenged for a long time to come.

There is great potential growth for New England predicated in the greater use of its capital within its own territory. The tendency in this direction is not as marked as might be wished, but there is a tendency. New England has furnished capital for the outposts of progress, all the way from New York and Pennsylvania to San Francisco, Seattle, Los Angeles, New Orleans, and Key West; and it will likely continue to send money to all that territory as long as there is any call for it. But the call is slackening at about the time conditions have created new opportunity in New England. Now capital is just beginning to look over the land in New England, and to study market conditions. Between the land that is not utilized and the markets that have to draw heavily upon the West and the South for their supplies, the capitalist sees his opportunity. That he does see his opportunity is evidenced by the thousands of fruit trees planted last year, the stock-raising enterprises being established in the three northern states, the increasing number of market gardening

plants, the big general farms coming to attention in all the states, and especially by the more rapid sale of all good land offered.

But when all is said that can be said about the great items of potential wealth and growth for the greater New England, there remains its land to reckon as by far the greatest one element in its growth and increasing wealth. The land of New

A BOSTON SUBURBAN RESIDENCE

England is an asset the value of which but few guess. We have been for so many years so completely obsessed with the idea that the only good land lies beyond the Alleghanies, or beyond the Mississippi, or even beyond the Rocky Mountains or north of our national boundary, that we have been looking over the great tracts of the best land in the United States which lie within the boundaries of New England. Likewise we have been reading and thinking about the plowing of prairies with steam-gang plows, harvesting with 30-horse reapers and threshers, and the other wholesale methods employed in the working of the lands of the West, and have not learned that we have tracts right here at home as virgin as the prairie

land was before a plow touched it, as extensive as the most greedy farm man could wish, and as capable of producing money-making crops as any land in any part of the country, bar none. And it can be bought for ridiculously low prices, and can be improved easily and cheaply. There are several tracts of this kind, ready to be bought and ready to be improved. There are other great tracts that are fit only for grazing, and yet others that are fit only for reforesting. Properly treated, all of these lands will make a profit for the owner, and a good profit. Twenty-five percent can easily be made raising sheep, and the cost of fencing the pastures with dog-proof fence is included in estimates. Reforesting is one of the more profitable of land enterprises, though slow in making returns. It is estimated by the best authorities that the agricultural product of New England may be quadrupled by the proper handling of the land now reckoned as farm land in use. If all the land adapted to agriculture and stock raising were to be utilized in a reasonably proper manner, the output from New England land would be increased from ten to twenty fold — it is chiefly a matter of speculation how much, but enormously.

Viewing the prospect o'er we are, therefore, confident that in New England there are forces now at work, and that the evidence of their influence is sufficiently well known, to assure us that in the industries relating to the land, in manufacturing, in trade, in civic enterprise and virtue, in learning, in the fine arts, in morals and esthetics, in racial improvement, and in general uplift, New England is entering a period of accelerated progress; that it as a section is to more than maintain its place; that it is to be the theater of great developments — perhaps the most notable development the country will be able to show during the first half of the Twentieth Century. This we believe, and we believe that belief rests upon visible premises and reasonable deductions.

Boston Chamber of Commerce Industrial and Educational Exposition

WHAT is intended to be the greatest Industrial and Educational Exposition ever held in New England will be opened in the Mechanics Building, Boston, in October, 1911, running for the entire month.

Since the amalgamation of the three large trade organizations into one — the Boston Chamber of Commerce — the matter of an Industrial and Educational Exposition has been considered by the Committees on Industrial Development, Education, Manufactures and Trade Extension, and having received unanimous reports from all four Committees recommending that such an Exposition be held, the Board of Directors voted that the Trade Extension Committee should arrange for and direct this Exposition.

THE PURPOSES *of the* EXPOSITION ARE:

First: To promote manufacturing and commercial activity in New England.

Second: To show the people of New England the methods and extent of our manufactures and resources.

Third: To attract the attention of the whole country to New England's large and varied industries.

Fourth: To bring the employer and workman, merchant and buyer, into closer touch with manufactory and its products.

Fifth: To stimulate the people of New England, particularly the younger generation, to a realization of the dignity and possibilities of a trade, and thus promote industrial education.

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